VISUAL LEARNING IN A GRAPHIC DESIGN SETTING

Katarzyna Anna Chmela-Jones, NHDip (Fine Art)

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Faculty of Human Sciences,
Vaal University of Technology

Supervisor: Prof. R.J. Gaede
Co-Supervisor: Dr. C. Buys

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DECLARATION

This dissertation is the result of my own independent work, except where otherwise stated. Other sources are acknowledged by giving explicit references.

A bibliography is appended.

Signed.....

Date.....30/10/2006.....

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ABSTRACT

An exploratory study was undertaken at three campuses of the Vaal University of Technology in response to weak examination results in one of the subjects of the graphic design curriculum. The aim of the study was to investigate visual learning strategies as used in conjunction with co-operative learning approaches in a higher education setting and to asses the appropriateness of these learning approaches in the discipline of graphic design at first-year level. The research questions that guided the study focused on how first-year graphic design learners experience (a) visual learning strategies, (b) a co-operative learning environment, as well as (c) the combination of these. The literature review component of the study covered (1) the fundamentals of visual learning, including the concepts of visual literacy, visual semiotics and visual culture; (2) graphic design education, especially in a South African context; and (3) principles of co-operative learning, including Avenant's requirements for successful group work. In the field work component of the study, multiple-choice questionnaires, open-ended questionnaires and focus group interviews were used as the main data collection methods. The results of the study did not indicate that first-year learners enrolled in the discipline of graphic design are likely to benefit from a combination of visual learning and co-operative learning strategies. Therefore, the implementation of a combination of the above-mentioned teaching strategies is not recommended in this setting.

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ORIENTATION

Background to the study

This study deals with the importance of visual learning and the co-operative environment in the field of graphic design education. Despite considerable research on the outcomes of teaching methodologies at the tertiary level, there have been very few investigations of learners' perspectives on the different approaches. This dissertation formulates recommendations for the appropriateness of the use of visual learning methods in combination with co-operative strategies in the teaching of specific graphic design theory subjects such as History of Art and Design 1 in the higher education sector.

A review of literature on visual learning and co-operative learning strategies as well as extensive fieldwork led to the development of an exploratory study, which stressed the importance of visual learning and co-operative learning to the study of History of Art and Design 1. The goal of this research is to assess the appropriateness of a visual methods co-operative learning programme in the teaching of first-year history of graphic design at the Vaal University of Technology (VUT).

According to Lupton and Abbott Miller (1998:215), design courses throughout the United States have come to recognise that history courses are crucial to the education of designers, "grounding learners in a critical discourse about the origins and future of their discipline". They have designed a course that they call an "intellectual survival kit" for graphic designers, which aims to integrate graphic design history and traditional theory components.

Furthermore, the trend towards incorporating more theoretical study in the teaching of history at the Vaal University of Technology has been experienced recently. This study focuses on creating possible solutions to several problems that have been experienced in the instruction of the subject History of Art and Design 1 to graphic design first-year learners at the Vanderbijlpark campus, Ekurhuleni campus and the North-West campus of the Vaal University of Technology. Some of the problems that need to be addressed at the VUT include the low design proficiency of entry-level learners as well as the high cost of

the graphic design course. These issues, combined with the increasingly high expectations of the graphic design industry, need to be addressed in both the practical and the theoretical component of the course.

In the late 1980s and the 1990s the introduction of new technologies such as the home computer raised the expectations of the industry. According to McCoy (1998:9), "[t]he advent of computers and information technology has also made major inroads into methods of university teaching, with web sites, bulletin boards and email now being the stock-in-trade vocabulary of most learners". Moreover, McCoy (1998:9) argues for the benefits of graduate and post-graduate programmes in graphic design, stating that "it should challenge learners to look deeply into the discipline and into themselves to connect design to its culture, its history, its users, its society, and its technology".

At the VUT, the subject History of Art and Design 1, which forms part of the broader curriculum for graphic design learners, has consistently produced weak examination results, which have been affecting the overall performance of the learners negatively. The subsequent low throughput rate raises the question whether the current teaching methodologies are of optimal benefit to the learners, or whether alternative teaching methodologies such as visual learning and co-operative learning would be better options. The problems that have been identified have been experienced in various groups of first-year graphic design learners over a three-year period. The learners at the VUT come from diverse cultural and socio-economic backgrounds. Common challenges include a lack of basic art history knowledge (art history as a school subject has been included as a prerequisite for the course for 2007), inadequate language proficiency (English is the language of instruction at VUT, but seldom the mother tongue of the learners), and a lack of awareness of how the theory and practical subjects of the offering relate to each other. According to Brand (2003:28), a recent survey conducted by the Pan South African Language Board, found that nationally only 22% of African-language speakers are "functionally proficient" in English. Another stumbling block for the learners is the need for funds to be able to purchase the prescribed text books, the lack of which results in very low first semester test and examination results. Despite the focus on new media and

new technologies that are made available to learners, most academic staff at the VUT still rely heavily on lectures as the main means of disseminating knowledge and maintaining some sense of contact with their learners. The perceptions and attitudes of learners and educators would need to change in order to enhance the learning environment.

Co-operative work has been credited with helping learners function effectively in groups, count on member input and achievement, and live with group outcomes - strategies essential to the successful graphic designer. It is important to recognise, as Becker (1998:61) points out, that "educators believe that group projects are an increasingly essential part of classroom assignments. The working world is one of working groups, and learner exposure to the benefits and pitfalls of group work is assumed to be beneficial for all learners."

As future graphic designers, learners need to be familiar with the co-operative environment and have to feel comfortable when they work in groups in order to achieve a successful end product. In this regard Vähäpassi (2001) defines co-operative learning in the following way: "Co-operative learning can be seen as a generic concept, which includes several methods of organising the learning environment. It is usually defined by a set of processes or step-by-step methods which help learners to interact together in order to accomplish a task, gain a specific goal or develop an end product. The learners work in small groups and the co-operation is used to help the individuals learn better. Learners co-operate to construct their knowledge."

At the former ML Sultan Technikon (since 2002, the Durban Institute of Technology), more appropriate teaching methodologies in design were introduced in 1994 in order to encourage teamwork and to redefine the notions of advantage and disadvantage so that learners could learn from each other as equals (Sutherland, 2004:56). Both co-operative learning and the use of visual learning methods is important to graphic design theory education as it is already implemented in the teaching of several practical components of the course at the Vaal University of Technology.

Graphic design is a skills-based course and the implementation of co-operative learning skills may be applied to both the practical and the theory courses. The learning of co-operation and group work can be relevant to the work situation – it is a means of teaching life skills as part of the graphic design course. During an action learning experience such as group work, participants' thinking changes from a focus on the negative, hindering factors at the beginning to more positive insights in the end, thus creating suggestions for overcoming the barriers to organisational learning and change.

In addition, there is a belief that visual communication can be used discursively to stimulate diverse cultural groups. Visual learning is an approach to helping learners communicate with imagery. The concept of verbal versus visual learning preferences comes from Paivio's *Dual Coding Theory* (1991:255), which addresses a person's preferred method of processing information. In the graphic design environment learners deal with vast quantities of visual information and have developed ways of processing this information effectively. Using the visual learning style is useful for learners who prefer the visual modality of learning in order to better recall what has been observed or read. Visual learning makes use of methodologies that include graphs, charts and diagrams, watching visual material such as video, the visualisation of concepts, and using sketches, time-lines and mapping to strengthen learned content. Williams and Williams (1999:330) note that "while learners fail to recognise themselves as visual learners, they are in fact heavily dependent on visual information".

It is recognised that the implementation of visual learning strategies requires that existing handouts and course structure be revised and that specific visual components be implemented as part of the lecture process. One of the core concepts located in the area of overlap between theories of visual and co-operative learning is what Banks (1995) calls the "collaborative account". Used in a narrow sense, the term derives from social anthropology where it refers to instances where study participants do not merely collude with the researcher by allowing visual documentation to take place in their communities, but actively give the researcher directions about what should be visually documented, and how the documentation should occur (Banks, 1995). In contrast, a much broader interpretation of what visual collaboration may involve is evident in a wide range of

studies located in the field of education that includes the use of collaborative visual accounts in adult literacy training (Dambekalns, 2000), youth media education (Niesyto, 2000) and artists-in-residence programmes (Grauer, Irwin, de Cosson & Wilson, 2001). Similarly, recent studies conducted under the auspices of Arts-based Educational Research (ABER), a special interest group of the American Educational Research Association, which focuses on the processes of creativity and interpretation in interdisciplinary and trans-disciplinary settings (Norris, 2000), amply illustrate the different forms that visual collaboration –or the combined application of visual learning and co-operative learning principles – may take when a variety of art disciplines such as multi-media, drama, collage, photography or quilting are actively integrated into the education process. However, while the above-mentioned studies contain numerous examples of instances where visual learning principles and co-operative learning principles were successfully applied in conjunction with each other, there is no mention in these studies of a link between successful visual collaboration on the one hand and learner performance as measured by means of examination results, for example, on the other. In other words, while the above-cited studies – none of which were conducted in a tertiary setting – thoroughly illustrate the concept of visual collaboration in action, they do not shed any light on whether combining the respective strengths of visual learning principles and co-operative learning principles necessarily leads to increased performance.

If the outcomes of the exploratory study are successful, the recommendation for the establishment of a set of guidelines for the implementation of a revised approach, which includes a component of visual learning methods as well as group work or co-operative strategies in the first-year graphic design history learning programme, will be considered. Any content revisions to the curriculum could include not only the increased implementation of combined visual learning and co-operative learning strategies, but additional broader based cultural and theoretical base. In commenting on skills necessary for successful visual learners, Abraham (2000:9) states: "It is imperative, especially in multicultural environments, to equip learners and professional visual communicators with the kind of visual literacy that goes beyond simple perceptions of message effectiveness.

Visual communicators have to be equipped with critical-cultural skills that enable them to interrogate the kinds of visual meanings that are being created."

Aim and objectives of the study

The aim of the study was to investigate visual learning strategies as used in conjunction with co-operative learning strategies in a higher education setting and to assess the appropriateness of the use of a combination of visual learning and co-operative learning approaches in the discipline of graphic design at first-year level.

Therefore, the main and specific objectives for the study can be summarised as follows:

- To review the literature on the fundamentals of visual learning, including the concepts of visual literacy, visual semiotics and visual culture
- To review the literature on the status of graphic design education, especially in South Africa
- To review the literature on the principles of co-operative learning, including Avenant's requirements for successful group work
- To conduct field work among first-year graphic design learners at the Vanderbijlpark, Ekurhuleni and North-West campuses of the Vaal University of Technology with a view to assessing the appropriateness of visual learning approaches in the discipline of graphic design at first-year level.

Research question

The following research question guided the study: How do first-year graphic design learners at the VUT experience (a) visual learning strategies, and (b) a co-operative learning environment, as well as (c) the combination of these?

Method and design

The empirical component of the study involved the implementation and use of visual learning methods in combination with co-operative learning strategies for the subject History of Art and Design 1.

The non-empirical component comprised a literature review and investigation, including a survey of graphic design education as well as an investigation into different types of learning such as visual learning, co-operative strategies and group work.

The methods used in the empirical component of the research included voluntary participation by first-year graphic design learners at the VUT, feedback sessions and review sheets. The sampling method was broad based routine non-probability sampling as discussed by Babbie and Mouton (2001:182) in *The Practice of Social Research.* The sample consisted of all first-year learners enrolled in the full-time graphic design course at the VUT between 2002 and 2004. The minimum requirement for a person's inclusion in the sample was that the person should be a first-year learner enrolled in the full-time graphic design course at the VUT between 2002 and 2004. Limitations of the chosen sampling method were the reliance on the available subjects during the course of the exploratory study (2004), as well as a limited sample size. The assessment method used was primarily comparative assessment (see Annexure G) of learner results in the graphic design department of the VUT (first-year learner examination results in 2002 and in 2003 being seen as the control group of students with no prior experience of visual learning and co-operative learning. The combination of visual learning strategies and co-operative learning strategies was implemented as part of the exploratory study in 2004.) The data collection techniques included observation, multi-choice questionnaires, open-ended questionnaires as well as focus group interviews with learners at the different campuses of the Vaal University of Technology. According to Mouton (2001:198), the group interview is a source of validation of the original questioning by adding or embellishing interpretive data.

It was important that the learners who were asked to participate in the research felt capable of using the various methods of visualisation and co-operative strategies that were to be required of them. Possible factors that were considered as hindering the progress of the research were the learners' refusal to participate in group work or, their lack of genuine involvement. What was recognised in preliminary classes was the capacity of some learners to 'piggy-back' off the work of others. In a further discussion of this practice Vähäpassi (2001) notes that in co-operative learning this practice is discouraged and that learners should learn together so that they will gradually be able to perform better. In order to ensure that all learners benefit from the implementation of the combined techniques, the visual learning material and co-operative work strategies need to motivate all learners.

The study involved nominal expenses such as travel costs, borrowing equipment for class work, using transparencies, and creating visuals for exercises, group work or projective techniques.

Overview of chapters

The main body of the dissertation consists of a literature investigation as well as the reported results of the comparative assessment component of the study. The literature investigation will cover (1) definitions of visual research, visual learning and co-operative strategies as relating to higher or adult education, as well as (2) a review of visual learning methods with the emphasis on graphic design education. The dissertation structure is as follows:

Chapter 1 provides an orientation on the subject of visual semiotics and visual culture, visualisation and visuality, visual literacy, visual learning styles, visual learning methods and visual language. It explains how these approaches overlap and relate to each other.

Chapter 2 explores graphic design education in the South African as well as in the international context. It also discusses the background of visual learning with emphasis on visual research, as well as visual learning methods.

Chapter 3 discusses the co-operative learning approach within a constructivist educational framework. This framework places the focus on understanding the individual learner. The principles of co-operative learning can be used as co-operative learning can be seen as a didactic means whereby small-group activities are organised. As graphic designers are often required to work as part of a team, the idea of introducing co-operation in the learning environment is valid.

Chapter 4 introduces and discusses the empirical component of the study. The need for the study and the supposed reasons for the low examination results for the subjects History of Art and Design 1 at the Vaal University of Technology are explained. Cognitive learning is defined and the implementation of the exploratory study is examined and explained.

Chapter 5 presents the numerical pie-graph summary of responses obtained from the three questionnaires used as part of the exploratory study. Questionnaire 1 deals with learners' general attitudes towards visual learning/non-visual learning and co-operative learning. Questionnaire 2A examines learners' attitudes towards visual and co-operative learning after participating in a visual learning enhanced lecture and working in a group. and Questionnaire 2B determines learners' attitudes towards non-visual learning after the 'standard' lecture approach where no extra visual learning or group work stimuli were provided. The combined findings of the pie charts are summarised in table format at the end of the chapter.

Chapter 6 discusses the learners' responses to the exploratory study. In summary, the outcome of the exploratory study was not what was expected at the onset of the research. Although some learners responded positively to the increased visual learning component as well as to the group work, overall the learners reported satisfaction with the current system of teaching and did not show any significant improvement during the study.

Conclusion A summary of the preceding chapters as well as recommendations of fields for further study are included in this chapter. The main findings of the research as well as possibilities for further study are discussed.

Key terms

A list of key terms used in the study appears below. The majority of the terms have been referenced from Ellington, Percival and Race's *Handbook of Educational Technology* (1995).

- Action learning – a process in which a group of people come together more or less regularly to help each other learn from their experience
- Action research – according to Ellington *et al.*, (1995:204) "a process of learning-by-doing (including learning by making mistakes when this can be done safely) in a real-life situation or in a simulated environment of the same sort
- Aims – the preferred result of an exercise (Ellington *et al.*, 1995:204).
- Analysis – according to Ellington *et al.* (1995:204) "a cognitive process which involves breaking down an idea, system or process into its constitutional parts and examining the relationships between those parts"
- Animation – the act, process, or result of imparting life, interest, spirit, motion, or activity. The quality or condition of being alive, active, spirited, or vigorous. The art or process of preparing animated cartoons. An animated cartoon (www.dictionary.com /animation)
- Audiovisual – according to Ellington *et al.*, (1995:205) "a term used to describe instructional materials or systems which use both sound and vision (e.g. video)"
- Case study – Ellington *et al.* (1995:207) define a case study as "an in-depth examination of a real-life or simulated situation carried out in order to illustrate special and/or general characteristics".

- Connotation – the range of secondary meanings within a form of communication (such as text; written, verbal or visual) (Noble & Bestley, 2005:94).
- Co-operative learning – learning defined by a set of processes or step-by-step methods which help learners to interact with each other in order to accomplish a task, gain a specific goal or develop an end product
- Facilitator – according to Ellington *et al.* (1995:217) "a group discussion leader whose primary function is to act as a catalyst in stimulating discussion rather than providing information"
- Fishbowl session – according to Ellington *et al.* (1995:218) "a group discussion technique whereby a number of the class sit in an inner circle and hold a discussion while the remaining participants sit around and observe the interaction"
- Foundation course – according to Ellington *et al.* (1995:219) "a course designed to provide a basis for more advanced or extended studies"
- Generic skills – Ellington *et al.* (1995:220) define generic skills as "skills that are fundamental to a class of activities and are transferable from one job or activity to others"
- Group learning/Group work – according to Ellington *et al.* (1995:220) "learning that takes place through some form of small-group activity"
- Individualised instruction/teaching/learning – according to Ellington *et al.* (1995:223) "the tailoring of instruction, teaching or learning to meet the needs of the individual learner rather than the learning of the group as a whole"
- Learning – Ellington *et al.* (1995:225) define learning as "(a) in *behavioural psychology*, a change in the stable relationship between (i) a *stimulus* that an individual organism perceives and (ii) a *response* that the organism makes, either covertly or overtly; (b) a relatively permanent change in behaviour that results from past experience, produced either inadvertently or deliberately.
- Life skills – according to Ellington *et al.* (1995:226) "a generic term for the various enterprise skills and other process skills needed to cope effectively with the outside world"

- Likert scale – according to Ellington *et al.* (1995:226) "an attitude scale involving the use of a list of statements to which an individual has to respond, normally from a range of degrees of agreement/disagreement"
- Linguistics – the scientific study of language and its underlying structure (Noble & Bestley, 2005:94)
- Multimedia – Of or relating to the combined use of several media: *a multimedia installation at the art gallery.* In Computer Science or Design: Of or relating to an application that can combine text, graphics, full-motion video, and sound into an integrated package. (www.dictionary.com /multimedia)
- Performance indicator – according to Ellington *et al.* (1995:233) "a measurable criterion that can be used to assess the standards to which an activity has been performed and for which evidence must be gathered"
- Plenary session – according to Ellington *et al.* (1995:234) "a session involving all the participants in an exercise, programme or course"
- Semantics – the branch of linguistics that deals with the study of meaning; the study of the relationships between signs and symbols and the meaning that they represent (Noble & Bestley, 2005:94)
- Semiotics – according to Noble and Bestley (2005:94) "the study of signs and symbols, especially the relationship between written and spoken signs and their referents in the physical world or the world of ideas; a core strategic method by which graphic marks, texts and images can be deconstructed and interpreted to determine their underlying meanings
- Self–assessment – according to Ellington *et al.* (1995:240) "assessment of progress, attainment of objectives by actual learner, generally by using some sort of questionnaire or criterion-referenced test"
- Study skills – according to Ellington *et al.* (1995:244) "the set of skills that a learner needs to develop in order to study effectively"
- Teacher/Instructor/Institution-centred approach – Ellington *et al.* (1995:246) define these approaches as 'the "traditional" educational system in which instruction is almost in total control by the host institution and the teaching staff'

- Validity – according to Ellington *et al.* (1995:249) "the extent to which a test or other measuring instrument fulfils the purpose for which it is designed"
- Visual learner – according to Ellington *et al.* (1995:250) "a learner who, in a visual sense, views a system as a whole rather than analysing it in terms of discrete elements"
- Visual learning – a system of learning which utilises images, colour, maps and graphs to organise information and communicate ideas
- Visual learning methods – Visual learning methods may include the increased use of visual material and the use of multimedia techniques. Other common visual learning techniques include mind and concept maps and graphs, and webbing.
- Visuality – learning by means of visualisation techniques; relying on the visual.

CHAPTER ONE

PRINCIPLES OF VISUAL LEARNING

1.1 Introduction

In order to determine how learners experience visual learning in the field of graphic design theory education, this chapter analyses topics concerned with visuality. As this dissertation deals with the subject of visual research, an orientation on the fundamentals of visual learning as well as the concepts of visual semiotics, visual culture, visualisation and visuality, visual literacy and visual language is discussed. The way in which these approaches relate to each other is also examined.

As the graphic design course at the Vaal University of Technology deals primarily with visual information, it is imperative for learners to have the means of interpreting and applying visual symbols. Visual research, which is a component of visual culture. involves the graphic designer in a broad range of activities, which contribute to the development of new design propositions in a number of ways. It is vitally important that the designer understands the context into which the design is placed.

1.2 Visual semiotics and visual culture

Elkins (2003:2) describes visual culture as "a predominantly American movement ... younger than cultural studies by several decades". Although the term *visual culture* did not appear as a formal discipline until the early 1990s, it was first coined by Michael Baxandall (1972) in *Painting and Experience in Fifteenth Century Italy*. Elkins (2003:2) further defines visual culture as "less Marxist, further from the kind of analysis that might be aimed at social action, more haunted by art history, and more in debt to Roland Barthes and Walter Benjamin than the original English cultural studies".

The phrase *visual studies* may stem from the University of Rochester's programme in visual and cultural studies and first appeared in the early 1990s. In 1995 visual studies was defined as a name for "the confluence of art history, cultural studies and literary theory." by W.J.T. Mitchell of the University of Chicago (Elkins, 2003:5). There is a trend in the United States, England and Canada to base visual studies on the springboard of art history, literature and film studies, but the feeling in continental Europe and Latin America is that this discipline is more closely associated with semiotics, visual communication and philosophy. As visual studies is a relatively new field of research it remains to be seen which will remain the dominant model.

According to Mirzoeff (2004:3), "[T]he gap between the wealth of visual experience in post modern culture and the ability to analyse that observation marks both the opportunity and the need for visual culture as a field of study." Mirzoeff further notes that while the different visual media have been studied independently, there is a need for the interpretation of postmodern globalisation of the visual as everyday life. He defines visual culture as being concerned with visual events in which information, meaning or pleasure is sought by the consumer in an interface with visual technology.

A means of interpreting the visual can be found in the science of semiotics. Semiotics, the science of signs, is a system devised by linguists to analyse the spoken and written word. Semiotics divides the sign into two: the signifier (that which is seen), and the signified (that which is meant). This binary system offers great potential for explaining wider cultural phenomena. Van Leeuwen (2001:94) discusses a category of visual semiotics known as Barthian (after Roland Barthes). Visual semiotics and iconography are particularly useful for the investigation of the representational ('denotative') and symbolic ('connotative') meanings of the people, places and things included in different kinds of images. Furthermore, Van Leeuwen (2001:94) expands on this theory by stating:

> "In Barthian visual semiotics the key idea is the layering of meaning. The first is the layer of *denotation*, of 'what, or who, is being depicted here?' The second layer is the layer of *connotation,* of 'what ideas and values are

expressed through what is represented, and through the way in which it is represented?'"

For some critics visual culture is simply 'a history of images' handled with a semiotic notion of representation. Mirzoeff (2004:4) quotes Barthes when discussing visual culture as a totally interdisciplinary subject: "[I]n order to do interdisciplinary work, it is not enough to take a 'subject' (a theme) and to arrange two or three sciences around it. Interdisciplinary study consists of creating a new object, which belongs to no one." The medium of visual culture is centred on understanding the response to visual media by individuals as well as groups. It is a discipline that reaches beyond the confines of study into people's everyday lives.

For the graphic designer to understand the context into which a design is placed, several factors need to be taken into account: the range of materials already in existence within the design context, the expectation of the target audience, and as the existing messages against which the design will have to compete (Noble & Bestley, 2005:94). In order to analyse the resources and materials available to graphic designers in a proposed project, a semiotic analysis of the work is often called for. Audiences have expectations with which they question visual images and the role of a good designer is to answer those expectations in new ways. Furthermore, according to Noble and Bestley (2005:94) "the understanding that visual messages have connotative meaning of an image or sign, and that these texts can be interpreted by the reader on the basis of their class, race, gender and education is a useful strategic tool for graphic designers".

According to Noble and Bestley (2005:96), "in order to demonstrate the interpretation of meaning one needs only to compare the design elements used in contemporary branding and advertising". Graphic designers develop logos, and for the purpose of semiotic analysis a logo would denote the sign. As an example several logos (signs) can be compared.

According to the example given by Nobel and Bestley (2005:96), two logos that utilise similar associations but are targeted at different audiences, are the Burger King logo (Figure 1.2) and the Rolex watch logo (Figure 1.1).

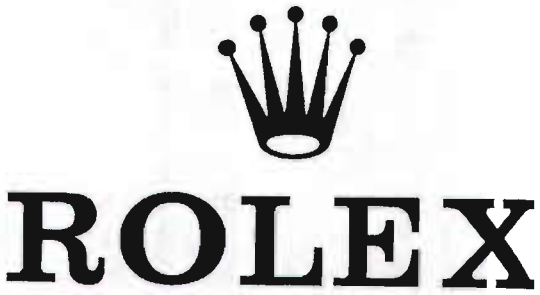


Figure 1.1: Rolex logo

Figure 1.2: Burger King logo

The Rolex logo makes reference to royalty by the visual use of the crown; while the Burger King logo makes the same references in its name (the signifier). The signified is the associations the viewer might make to status and luxury. Because of its perceived high quality and high price, a Rolex watch is a symbol of luxury. Owing a Rolex, therefore, might make the owner a part of an exclusive and elite society. However, most viewers would not regard eating at the Burger King as being exclusive. In this case, the reference to monarchy in the title (the sign) could be aspirational, or used to suggest that Burger King burgers are better than those produced by all other burger manufacturers (the signified) (Noble & Bestley, 2005:96). Similarly, many other logos employ the associations to royalty. The Print King logo (Figure 1.3) utilises the signified associations to royalty by the visual use of the king (an image similar to one found on a deck of cards)

– the signified associations being that Print King will provide the consumer with 'royal' (i.e. superior) service (Fishel & Gardner, 2004:110).

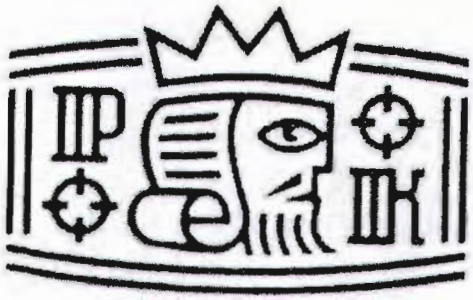


Figure 1.3: Print King logo

The logos for the Danish State Information Service and the Royal Danish Ministry of Foreign Affairs (Figures 1.4 & 1.5) both include the visual signifier of the crown. However, the reference is not aspirational as in the previous examples, but symbolic, as Denmark is a constitutional monarchy and the reference is merely a statement of political fact (Fishel & Gardner, 2004:170).

Figure 1.4:
Danish State Information Service logo

Figure 1.5:
Royal Danish Ministry of Foreign Affairs logo

Throughout history, art has had the power, through representation, to create 'the ideal'. The contemporary 'ideal' is often represented by imagery used in film, design and advertising. Artists and designers have been credited with the ability to create that which nature cannot – perfection. Great works of art were created for royal and clerical patrons

and were often aimed at inciting self-improving behaviour; therefore art was a vehicle for social change. Herbst (2005:18) notes that advertising has a similar function today, and points out that although in design, advertising offers the viewer something to identify with, far from encouraging self-improvement, it is also "frequently dismissed as a falsification of reality that, far from serving any useful social purpose, causes massive damage to many individuals". Herbst (2005) refers to the practice of creating unattainable ideals through advertising by using images of beauty that are enhanced by a team of stylists, photographers and retouches before the advertisement is finally printed. This is linked to the idea of representation, which frequently materialises in image-making practices such as advertising, graphic design and film, and forms the basis of research in visual studies.

In an effort to define visual studies, Elkins (2003) refers to seminal works published by Nicholas Mirzoeff, such as the *Introduction to Visual Culture* (1999) which focuses on contemporary transnational mass media, *Interpreting Visual Culture* (1999), edited by Ian Heywood and Barry Sandywell, which looks at the philosophic interrogation of vision and visuality, and *Practices of Looking* (2001) by Marita Sturken and Lisa Cartwright, which is a social critique of current image-making practices. Elkins (2003:17) notes that "these books form a set from which visual studies emerges as overlapping concerns united by a lack of interest in several subjects – older cultures, formalism and canonical works of art".

Although visual culture and visual studies are currently thriving at institutions of higher education worldwide, a common thread is a formed relation to art history. Whereas the teaching of art history remains the backbone of most art and design departments, it can also be seen as teaching an old-fashioned, essentially European canon of artists, inculcating what appears to be a traditional aesthetic education (Elkins, 2003:21). Visual studies are often relegated to the communications departments of some universities where new media studies, film, video and television are taught. Whilst commenting on the mistrust that exists between visual studies and art history departments, Elkins (2003:23) mentions a trend, at an unnamed institution, where history of art was relatively poorly

attended, whereas learners flocked to the lectures on visual studies. Elkins (2003:23) suggests that "if this trend continues one may need to transfer the teaching of art history to the classics or archaeology department – departments which 'specialise' in older art".

1.3 Visualisation and visuality

Nicholas Mirzoeff (2004:5) notes that "one of the most striking features of the new visual culture is the growing tendency to visualise things that are not in themselves visual". Mirzoeff (2004:5) further describes the growing technological capacity to make visible things that are, in fact, invisible to the naked eye and quotes the German philosopher Martin Heidegger. Heidegger called this phenomenon the raise of the world picture, arguing that "a world picture ... does not mean a picture of the world but the world conceived and grasped as a picture".

The ability to absorb and interpret visual cues is the basis of industrialised society and is becoming increasingly important in the information age. The practice of interpreting visual information has become so part of our routine that car drivers, although bombarded with hundreds of visual cues that need to be constantly interpreted, often play music, listen to the radio, or chat on the cell phone to keep from being bored. In addition, visualising is used in most industries, from medicine to computers. Early computers were machines that processed a binary system of ones and zeroes, and were not designed as visual tools. Software is what makes computer code understandable for the average user. Early computer languages were textual and involved commands that were not intuitive, but had to be learned. The more recent operating system developed by Microsoft is based on a point-and-click interface system first used by Apple. Microsoft Windows programmes, which are now being used worldwide, use a simple drop-down menu and easy icon system. Thanks to computer languages like Java the uneducated home computer user can now have access to sophisticated programming. Programmes like RealPlayer and Shockwave are available free to Internet users and have enabled users to

play real-time video with full-colour graphics. Mirzoeff (2004:6) notes that "there is no inherent reason that computers should use a predominantly visual interface except that people prefer it this way". The evolving definition of graphic design is influenced by various factors of which technology is only a fraction. Wild (1998:41) bemoans the "tendency of technology to devalue the work of the graphic designer". It is thanks to unconventional graphic designers who continue to extend the limits and produce experimental work that the boundaries of what is acceptable graphic design continue to be re-assessed. This is in contrast to the earlier mode of graphic design, which was previously a purely commercial discipline.

Mitchell (2004) holds a view similar to Mirzoeff's and refers to the emergence of a visual culture that is based in visualisation 'picture theory'. According to 'picture theory', some aspects of Western philosophy and science have come to adopt a pictorial, rather than textual, view of the world. 'Picture theory' strongly undermines previous intellectual discussion that was based on linguistics-based movements such as structuralism and post-structuralism. Mitchell (2004:7) talks about "the idea of *spectatorship*, which can be defined as the look, the gaze, the practices of observation and surveillance, as 'deep a problem' as various forms of *reading* (deciphering, decoding, interpretation). World pictures cannot thus be purely visual but the visuality of them cannot be defined by purely linguistic terms."

The significance of visual culture is that it enables the viewer to move the visual experience away from the art gallery or cinema and re-evaluate everyday life. Different notions of viewing and spectatorship are present in almost all visual disciplines – but visual culture prioritises the everyday experience of the visual (Mirzoeff, 2004:8). By definition, visual culture must influence popular culture, and the idea that human beings are complex participants in their social world is one that has more recently been accepted by designers and advertisers.

Whenever one engages with visual apparatus one experiences a visual event. Mirzoeff (2004:13) defines a visual event as the "interaction of the visual sign, the technology that enables and sustains that sign, and the viewer". As mentioned earlier, the science of signs

known as semiotics is a system devised by linguists to analyse the spoken and written word. The idea that culture can be understood by means of signs has been accepted as part of European philosophy since the 17th century, and has achieved attention in the last 30 years as linguists and anthropologists attempted to use the structure of the sign as a means of interpreting the structures of society. Semiotics divides the sign into two – the signifier (that which is seen), and the signified (that which is meant). This dual system offers some possibilities for explaining various cultural trends. Semiotics enables the viewer to interpret that which he or she has seen. In design and advertising all visual images either succeed or fail according to the extent to which they are successfully interpreted.

The constructed nature of visual images was defined by the development of film montage in the early 20th century. This innovative technique saw the cross-cutting and blending of film in order to create a new reality. In contemporary film and television, cross-cutting and montage have become commonplace and are used in music videos, soap operas and advertisements. Soap operas and advertisements frequently distort reality. Visual culture seeks to act by addressing the crisis of what is real and what is visualised in that which is commonplace.

1.4 Visual literacy

The expression *visual literacy* has been used mainly to refer to minimal standards in secondary and tertiary education. The original term was based on the notion that pictures have syntax and grammar as does writing. Visual literacy has also been identified with the capacity to remember images. In cognitive psychology, it has been claimed that the ability to comprehend images is linked to memory itself, so that images tell us what to remember. The proposition is also that visual literacy is largely the ability to recognise artworks and engage in their interpretation.

The suggestion that consumers are visually literate is decisive in magazine advertising. Herbst (2005:12) approaches the interpretation of contemporary South African magazine

advertising images from the premise that advertising in the media is often portrayed as a "diabolical instrument of manipulation". Herbst (2005:12) is of the opinion that some magazine advertisements play an affirmative, if not ambivalent, role in the lives of the consumers, because those consumers accept this value system that is endorsed by the mass media. He further notes that no single interpretive framework can be utilised in the analysis of advertisements.

Herbst (2005:12) offers an interesting interpretation of an advertisement that uses the symbol of lifestyle to stimulate interest in the product. The advertisement in question is a 2003 magazine advertisement for Two Oceans wine (Figure 1.6).

Figure 1.6: Two Oceans wine advertisement

The visual portrays a rocky tidal pool in which lies a bottle of Two Oceans wine. A female figure in a bikini rests her hand on a wine glass nearby. The inclusion of a male hand as well as a second wine glass can be interpreted that she is not alone and is enjoying the beach and the wine with a companion. Herbst (2005:12) notes that this advertisement is a clear example of symbols (the wine, the beach and the female figure) being used as bait to create desire in the consumer. The images in the advertisement do not only refer to the wine (the product the advertisement is trying to sell), but to a lifestyle to which this wine can give the consumer access – a holiday by the beach. In addition, Herbst (2005:14) observes that the advertisers are well aware that millions of

consumers can afford the product (the bottle of Two Oceans wine) but cannot afford the lifestyle. According to Herbst (2005:16), the advertisement draws on the aspirations of the average consumer but will be most effective with regard to those consumers who are "already persuaded" – those who identify with the lifestyle portrayed. These consumers are media literate and are capable of deciphering the visual clues portrayed in the image.

In support, Elkins (2003:126) notes that "if visual culture is going in the direction of the expanded and problematised field ... then visuality and kinds of visual competence will become important in university curricula". At present, the courses on offer often stand as an introductory course to the study of art history and not as a foundation for work in vision-related disciplines.

Elkins (2003:131) proposes an undergraduate course that would be suitable for learners from a number of disciplines and that would require a discussion about visual competencies and particular sets of visual knowledge. Often the questions leading to pedagogy and visual studies lead to the questions of visual literacy. One of the problems which led to the development of this study was a lack of visual literacy in first-year graphic design learners at the Vaal University of Technology. Interestingly, visual literacy needs to be taught to a number of people who would eventually be engaged with images in different ways – the photographer, the designer, the engineer, the anthropologist. One needs to ask what visual competencies the undergraduate learner needs to possess and what competencies should be taught in order to foster an understanding of visual literacy. One is constantly bombarded with the notion that we now live in a culture which is the most visually literate ever. According to Elkins (2003:131), David Chaney states that new media have made "the role of pictures in the discourses of everyday life" more important and mentions that the text book, *Practices of Looking,* by Lisa Cartwright and Marita Sturken opens with the claim that "over the past two centuries, Western culture has come to be dominated by visual rather than oral or textual media."

Banks (1995:available on Internet) asserts: "Visual data have been of concern to the social sciences in two ways: visual records produced by the investigator, and visual documents produced by those under study." Generally and traditionally, researchers dealing with the subject of visual research have been limited to the fields of photography, anthropology, ethnography and, to a certain extent, education. According to Banks (1995:available on Internet) this trend stems from Victorian taxonomy, and classificatory uses of visual media, photography, film and video have been used more recently to gather data for various other forms of formalist analysis: proxemics (the study of personal spatial behaviour), choreometrics and kinesics (the study of body 'style' and communication). Banks (1995:available on Internet) states that "what many of these recent projects have in common with their Victorian and Edwardian antecedents is an approach to mechanical visual recording media which tend to treat them as neutral technologies capable of objectively recording social behaviour or visible 'givens.'" In addition Duffield (no date:available on Internet) notes: "The western world is visually saturated; from mass media to advertising to fine art. All of these artefacts and mediums are culturally informative and embellish our visual environment."

Similarly, Elkins (2003:65) supports Dake's (1999) theory that currently the study of visual culture and therefore visual research is too broad and should be condensed into one more streamlined field of study. Elkins argues that one also needs to consider non-Western visual competencies. Non-Western cultures are often sidelined to the borders of conventional study. An expanded visual studies and visual literacy curriculum needs to consider the non-Western view of visuality and meaning.

1.5 Visual learning styles

The challenge posed to the graphic design curriculum, as it was at the beginning of this study and still exists at the Vaal University of Technology, is that although the expectation of being able to interpret visual symbols is there, few learners have ever been taught this skill. Most first-year learners write word-based text – mostly essays and

reports – and the course makes little specific use, in the teaching of theory subjects, of the visual dimension. These learners have not been taught how to interpret or render their own visual information. Wild (1998:44) states that "[t]he current prescriptions for what education needs to cope with the new technologies define the conceptual work of graphic design as being largely verbal" and acknowledges the "disdain for the visual" which is seen as a continual link in contemporary art education.

Furthermore, Bouwer (2000) points out: "Adult learners are rarely taught visual competence as visual images are relegated to illustrations for written texts, and attention is mainly focussed on the all-important written word." Brown (1989:458) claims that "lecturing is the most common method of teaching in universities in the world", which implies that the format of the lecture also plays an important part. He concludes from a review of research literature that lectures are "economical and fairly efficient but they should be augmented by other forms of teaching" (1989:458). According to Sweeney, O'Donoghue and Whitehead (2004) the most common type of such augmentation is the group discussion, referring to situations in which 5-25 participants engage in verbal interchange in the pursuit of academic learning. In particular, there is the tutorial, which, in its standard form, is designed to complement classroom lectures, and offers opportunities for learning such as by practising and applying concepts the learners are learning and by checking the validity of their understanding through feedback and constructive criticism. Dawson (1998) and Race (2001) also discussed and corroborated this argument.

The instructional material used in the teaching of theory subjects such as History of Art and Design 1 at the Vaal University of Technology makes little use of the visual dimension. It is the premise of this research that a certain level of visual literacy enhances the learning experiences of learners regardless of their field of study, but that it is especially important in a visual field like graphic design. The prescribed handbooks have repeatedly been said to be cumbersome, difficult to read and understand – especially by second-language learners. Bouwer (2000) emphasises this problematic aspect in the

following way: "Adult learners face many difficulties in their learning programmes, particularly due to the fact that having mastered literacy in their mother tongues, they move on to further educational programmes, which are mostly produced in English."

Visual literacy – the ability to understand, think, and create graphically – is far more than passively taking in visual images. It involves highly active pattern-seeking and pattern-making activities (Horton, 1992:686). Basel (1995) confirms that

> "visual literacy is both complex and culture-specific and not automatically attained by adults. Cognitive ability, learning strategies, environment, culture and/or past exposure to two dimensional images, affect the learners' level of visual literacy and the benefits they gain from pictorial teaching aids."

Furthermore, Horton suggests that visualisation, by drawing or by model, is a primary design tool, as important to an engineer as to a portrait painter, a biochemist or an architect. Not only the transmission of ideas but the very ideas themselves are limited by the designer's sensitivity to visual relationships. Understanding is based upon a perception of pattern amidst the ebb and flow of visual stimuli. Horton (1992:687) states that "at present, we seem to take visual literacy as a given despite the fact that our entire educational process aims at verbal literacy at the expense of the visual".

The term *visual literacy* was first coined by John Debes in 1969. The International Visual Literacy Association (http://www.ivla.org/) provides several explanations for what it means:

> Visual literacy: 1. a group of visual competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences; 2. the learned ability to interpret the communication of visual symbols (images), and to create messages using visual symbols; 3. the ability to translate visual images into verbal language and vice versa; 4. the ability to search for and evaluate visual information in visual media

In addition to visual and verbal literacy, a learner's learning style is one of the aspects of learner personality that appears to play a role in determining how much a learner learns. Computer technology such as groupware relies heavily on visual stimuli and therefore it may appeal more to learners who prefer to learn more visually than it does to those who prefer to learn more verbally.

Visual means of record keeping have been in use since the dawn of mankind. The use of new technologies may be seen as a progression of ancient practices. Researchers have acknowledged the possibility of visual culture, as personified by media such as the television and computer, as being able to displace the use of print culture in the not too distant future. A similar shift took place with the partial displacement of the ancient oral culture by a print culture with the gradual development of alphabets and, eventually, with the invention of Gutenberg's press.

In the United States, studies have been conducted by researchers such as Neil Postman, Chair of the Department of Communication Arts at New York University, involving children and learners who do not remember a time when there was no television. He concluded that based on his research, learners are lacking in interest and ability in reading. Postman (1985) states that "the printed word...emphasises logic, sequence, history, exposition, objectivity, detachment, and discipline. But television emphasises (among other things) images, simultaneity, immediate gratification, and quick emotional response." On average children in developed countries have more contact with visual images on television than the printed word, which may result in later learners who respond better to a visual modality in learning.

Consider the following relationships between words and images in current American culture: Lucky (1989:available on Internet) found that American youths each watch tens of thousands of television commercials a year, and learn to recognise countless brand names and symbols (such as Joe Camel the cigarette symbol) while they are still preschoolers. Shows such as "Sesame Street" ("Takalani Sesame" being the local

equivalent) follow the format that mimics commercials. As a result, children may learn new things from watching these shows but they also expect a quick payoff from learning; in some ways they are trained to be bored by or impatient with more complex learning tasks (www.dialogweb.com/cgi/dwclient).

Learners who prefer the visual modality of learning can recall better what they have observed or read. They often use visual recall of what has been read. Learners with a visual learning preference learn best from the following:

- graphs, charts and diagrams
- colour coding and highlighting text material
- visualising materials and concepts
- sketching pictures of items to be learned
- using bullets to separate ideas
- watching videos and films
- using time lines and mapping.

Lucky (1989) lists what pictures are good for:

- describing spatial relationships
- showing the structure of data
- allowing pattern-matching approaches to problem solving
- getting attention
- describing and identifying people
- invoking aesthetic appreciation.

Markel (1998:47) has made the following observations regarding visual learning at a college in America: The manner in which courses are structured at a tertiary education level has changed dramatically since the popular onset of the Internet. Learners involved in technical courses (such as graphic design, which is being used as an example for this study) should be at ease making documents such as presentations, manuals, web pages and online help files. Learners involved in less technical courses (such as public relations) are required to write essays as they did 10, 20 or even 30 years ago. Technical

and non-technical courses have different outcomes – more technically-based courses (such as graphic design) are there to help learners make documents that address the needs of audiences working in high-tech backgrounds. The non-technical courses are intended to help learners achieve a more general fluency, introduce problem-solving techniques and teach them how to employ convincing arguments. There are major differences in the way in which technical and non-technical courses are structured. For example, in a technical course like graphic design, learners deal not only with text but also with concepts of graphics and animation, and in their senior years with sound and video, whereas non-technical courses are almost entirely word-based.

Mike Markel (1998:47) further argues that there is substantial evidence that design and graphics play a positive role in the comprehension and learning of children and adults alike. Levin (1981:204) suggests that "the effects of adding pictures to children's literature are 'positive, potent and pervasive'. When the pictures reinforce the story's content, these effects are particularly strong, increasing comprehension to at least 40 per cent."

According to Markel (1998:47), combining words and pictures is another useful technique in enhancing the learning experience. This method, known as media redundancy, also appears to increase the effectiveness of instructional material. Studies summarised by Petterson (1989) have indicated that adults who learn text with graphics learn about one third more than people reading text without graphics (also see Levie, 1984). Other research also suggests that some of the greatest thinkers of our time were visual learners who relied on visual cues as a means of recalling learned information. In summary, Markel (1998:47) says that "some people are significantly better at processing visual information than verbal information. It would seem to follow, then that an informed and judicious use of the visual elements in instructional material ... would improve their effectiveness."

Few lecturers are trained in visual studies or visual learning and its uses. Most lecturers who work exclusively with theory would conceivably see themselves as verbal thinkers rather than visual thinkers. Although lecturers are aware of visual learning methods such as mind maps and concept graphs, the onus is often placed on the learner to utilise these methods when studying for examinations. These methods are seldom utilised in the classroom. An argument put forward by Markel (1998:47) is that the product that the learners create in their senior year is essentially a typewritten text. An interaction with visual information is not encouraged in History of Art and Design 1 at the Vaal University of Technology, although that is the emphasis of the practical subjects which is the major area of study for learners enrolled in the graphic design course.

The onus for the incorporation of visual information should not rest with the lecturer alone. Learners should also be encouraged to use visual tools as a training means. Michel (1992:18) suggests the use of three tools to enable learners to visualise information clearly. These are structured overviews, effective graphics and conceptual maps. Structured overviews are an outline of the material to be covered in the classroom. Most lecturers use this as a means of structuring their lesson plan – what they seldom do is share this summary with their learners. The argument for sharing it with the learners is if one provides this kind of outline ahead of time, it enables the learners to reassess what they may already know about a given topic and to fill in the gaps in their own understanding by using the information provided by the lecturer.

As suggested by Catterall and Ibbotson (2000) lecturers may also consider the idea of using graphics to help provide a framework for learning. Graphics are most effective when they are simple and dynamic. The use of graphics is most useful when teaching entirely new concepts – it helps learners familiarise themselves with a new concept and how that assimilates with the remainder of the training material.

Michel (1992:18) further proposes that a conceptual map combines the features of the overview with the appeal of a graphic display. Conceptual maps display meaningful relationships between concepts and provide valuable visual assistance to the learners. Conceptual maps further provide schematic summaries of what has been learned and are useful review sheets in the classroom. Lecturers may provide conceptual maps ahead of time, or the learners may use them as a means of reinforcing learned material during class time. Studies investigating the use of conceptual maps show that maps drawn by learners become more sophisticated and more fully integrated as they develop a better understanding of the subject. Therefore, conceptual maps provide valuable insight into a learner's progress.

1.6 Visual learning methods

All media to be used within the instructional design are determined by the requirements of learners, the objectives of the course, the course content, and instructional methods. This is consistent with Kemp's (1989:7) statement that "media are *not* supplementary to or in support of instruction, but *are* the instructional input itself."

According to Avenant (1990:135) "the sensory recording of stimuli is an essential requirement for concept formation" and therefore an essential component in effective learning. Experts such as Avenant argue that the implementation of visual learning methods is only justifiable if it leads to greater "in-context viewing" in learners. The showing of films, pictures, maps, models, specimens, merely for the enjoyment of the learners may not be sufficient argument for the implementation of a visual learning-based approach.

Avenant (1990:140) claims that research shows that

> "aimless and unplanned application of visual aids can give rise to misconceptions and confusion. Similarly, shortcomings in the visual aid can lead to failed in-context viewing. The learners need to be able to relate the visual matter to the subject matter obtained in text books and found by other

means of research. The excessive implementation of visual aids may also have a confusing rather than an illuminating effect – it is imperative that visual learning is always supported by theoretical learning content."

Visual learning methods may take several forms. The commonest and most widely used are:

- dramatisation: including simulation by learners, role-playing games, feedback (a form of storytelling) and presentations
- excursions: the opportunity to gain knowledge from industry, museums and galleries
- demonstrations
- audio-visual aids: film material including the Internet and interactive DVDs, graphic material and models.

From the beginning of 2004, first-year graphic design learners at the Vanderbijlpark campus of the VUT have been taught the subject History of Art and Design 1, which has included increased quantities of visual materials as well as more opportunity for the co-operative experience in group work. The visual learning methods implemented in the exploratory study for this study included mostly audio-visual aids in the form of a video. The learners familiarised themselves with the use of mind maps and were encouraged to utilise these when revising the lecture. During the course of the exploratory study the learners participated in two learning approaches – one including the video and the other a co-ordinator-based lecture. They then answered questionnaires based on the two different lecture approaches in order to determine which was preferable. Focus group interviews were conducted with the groups of learners in order to learn of any shortcomings or downfalls in the two approaches.

1.7 Summary

Chapter 1 discussed the various concepts of visuality as they may pertain to the study of theory subjects within a graphic design course.

The study of visual culture is becoming increasingly central to the study of design. Visual culture is described by Elkins (2003:2) as a "predominantly American movement" which is younger than cultural studies by several decades. Visual culture and visual studies share the common thread of first appearing as a discipline in the early 1990s. Visual studies was first taught at the University of Rochester in the United States at the beginning of 1991. Visual studies is often used as a springboard into art history, literature and film studies in the United States and is closely associated with semiotics, visual communication studies and philosophy in Europe and elsewhere.

Semiotics is a system devised by linguists to analyse the spoken and written word. As semiotics is a binary system which divides the sign into two (the signifier and the signified) it has great potential in explaining wider cultural phenomena and is frequently utilised as a tool in visual studies.

Visual culture and visual studies are currently thriving as formal disciplines in art and design departments at many higher education institutions. It is in these departments where they share the common thread of art history, as the teaching of art history is seen as the foundation for most art and design departments. It has been speculated that the teaching of art history be relegated to departments that deal with 'ancient' studies such as archaeology and that its place be taken by studies of visual culture. Visualisation can be seen as a global trend to adapt to a visual rather than a textual world. The original notion of visual literacy was that images have syntax and grammar as does the written word, and the term *visual literacy* is often linked to the capacity to identify and discuss images.

According to Horton (1992:686), at present our educational process emphasises the verbal literacy over and above, and at the expense of, visual literacy. Visual literacy is not only a group of visual competencies that can be developed by a human being but it is also seen as the ability to recognise artworks and engage in their interpretation.

Because visual literacy is so integral to the experience of learning, a course based on design principles and methods of learning utilising the visual can also be employed successfully. Experts such as Kemp (1989:7) and Avenant (1990:135) argue that the sensory recording of visual stimuli is an essential requirement for the formation of concepts and therefore an essential component in effective learning. Visual learning methods can take several forms from the use of audio-visual equipment, as well as through dramatisation, demonstrations and excursions. The increased visual component of the exploratory study was also explained briefly in this chapter.

CHAPTER TWO

SURVEY OF GRAPHIC DESIGN EDUCATION

2.1 Introduction

Chapter 2 is a broad-based survey of graphic design education with the emphasis on the South African context. The background of visual learning with emphasis on visual research, and visual learning methods and their importance to design education are also discussed.

Ellington, *et al.* (1995:250) define a visual learner as "a learner who, in a visual sense, views a system as a whole rather than analysing it in terms of discrete elements". These authors indicate that the main teaching methods in the great majority of learner-centred courses are individualised methods of one form or another. Many of the materials associated with individualised learning are highly structured and interactive, but this is not always necessarily the case. The materials may or may not have a visual element, depending on the topic being covered and the specific design objectives.

The use of visual research methods is relevant to the teaching of visually-based subjects such as graphic design. The Vaal University of Technology (VUT) has introduced a generic theory component for all first-year learners, which includes an introductory module to visual literacy. The division between the practical components and the theoretical components of any graphic design course are easily blurred, as all practical work needs to be supported by a sound theoretical base. The learners who have attended the first-year graphic design course are presumably somewhat visually literate at the beginning of the course and more so by the time they have to tackle the more advanced aspects of the practical and theoretical work.

2.2 Graphic design education

As the fledgling field of graphic communications developed, knowledge of methods and techniques was assimilated in practice and on the job, through apprenticeships and trial and error. According to Noble and Bestley (2005:20), the discipline of graphic design can be defined in a number of ways, but the most persistent definition over its relatively short history has described the role of visual communication as a problem-solving activity. Until very recently the majority of practising graphic designers usually had a background in fine art and used instinct and common sense to solve their design problems. Davis (1998:25) states that, at present there are over 350 000 practicing graphic designers in the United States – although no such numbers for the South African market are available there is no denying the popularity of graphic design as a career choice.

Design has been an established discipline at university campuses in the United States and Europe since the 1950s and has been popular at South African institutions since the late 1970s. Furthermore, the design subjects account for increasingly high proportions of learner enrolment. However, McCoy (1998:4) notes that "it was professional practice, not education that developed spontaneously as the first phase of graphic design's professional development". Her views are echoed by Swanson (1998:14) who strengthens the argument by stating that "design programmes (have) a tendency towards professional rather than general education."

In the past, graphic design achievers were mostly self-taught, far-sighted, often multi-talented visionaries who relied on their exceptional abilities to create design solutions. McCoy (1998:4) refers to them as "landmarks of originality, power and inventiveness". Comments favouring the self-trained designer still abound and (s)he is seen as the best source of ingenuity and innovation. There is a concern that the establishment of educational standards in graphic design would result in a bland homogeneity of practice.

Art and design schools and university art departments have been slow to realise that design is simply not a commercial application of fine arts ideas and processes. According to Noble and Bestley (2005:18) "research is an intrinsic aspect of design practice and an essential part of the activity of problem solving". McCoy (1998:4) further points out that

> "the acceptance of graphic design as a separate and distinct discipline – with significantly different intentions, history, theory, methods and processes – has been quite slow. Compounding the problem has been a growing eagerness among university art departments to compensate for shrinking fine arts enrolments with graphic design programmes, whether prepared or not. Entrenched fine arts faculty are teaching graphic design and many start-up graphic design programmes rely on just one inexperienced M.F.A. design graduate."

The problem highlighted by McCoy (1998) is a universal one and not restricted to her experiences in the United States. As a result, the number of mediocre graphic design programmes continues to rise, which, in turn, impacts negatively on the further development of the graphic design education community. Swanson (1998:17) further argues that design schooling has not helped learners become broader-thinking people. He expresses concern that "the tools of graphic design do not serve much purpose beyond a graphic design career. Graphic design education is not, for the most part, education. It is vocational training, and rather narrow specialized training at that." Although this may seem an unsympathetic view, it is echoed by educators at various institutions and was the catalyst for this study.

The past 20 years have seen a number of educational institutions in South Africa and abroad develop carefully structured curricula based on educational methods that go beyond the superficial simulation of professional practice. Highly professional and fresh approaches to education can be seen at some traditional universities in South Africa as well as at privately funded institutions like the Vega School of Brand Communication in Johannesburg. In my experience the graphic design department at the Vaal University of

Technology has embraced a more broad-based approach to the teaching of design and encourages 'experimentation' with various teaching methods. It also places emphasis on visually-based learning.

The publication of Philip Megg's *A History of Graphic Design* in 1983 brought with it another major new influence to graphic design education. Previously, graphic design learners had to rely on a regurgitation of a fine arts history curriculum which may have included a smattering of architectural history. The first graphic design history conference was also held in 1983 – the conference drew attention to the fact that graphic design actually had a history, a testimony to how young the graphic design profession really is. McCoy (1998:8) criticises current graphic design history courses by stating that "too often, history courses are taught as superficial surveys of graphic style with no examinations of social, cultural, and political contexts. This only furthers many graphic design learners' tendency to stylistic imitation." Drucker (1998:84) argues for the inclusion of discussions on technological changes, cultural changes, stylistic innovations as well as examinations into visual and verbal forms of language within a graphic design theory course.

Although a number of teaching methods are available, the face-to-face talk or lecture still holds a central position at many higher education institutions at undergraduate level and will undoubtedly continue to do so for a considerable time to come. It is surprising that comparatively little is known about the effectiveness of the lecture. While several studies, including those by Kemp (1989), Avenant (1990:135) and Markel (1998), have focused on the effective use of visual media within a lecture. Mills and Woodall (2004) have concentrated their studies on the effective use of group or co-operative work, but since this information is not widely known, especially among practising lecturers, the traditional lecture approach is still prevalent.

In 1999, at the Philadelphia University of the Arts in the United States, a task team consisting of 12 members spent a year writing the *Guide to Curriculum Planning in Design Education* for the state of Wisconsin. This task team identified several factors which may influence the future of design education. One of the most important issues was the exploration of integrated approaches to learning, thinking and teaching. The most recent trends identified in graphic design education in Wisconsin include more emphasis on visually-based subjects such as digital video and 3D character animation.

In the mid-eighties design educators often said that "the computer is just another tool." Design has developed significantly since those initial ideas about design education and technology, and is now at the point where technology is thoroughly enmeshed within the core design curriculum. Technology is used in almost every phase of the design process leaving no projects untouched – this has allowed designers to specialise in a wider variety of fields, resulting in expanded job opportunities. Thus technological trends are often included in the core design curriculum. This leaves the traditional curriculum, with its emphasis on hand techniques and history of design, in a difficult position. Learners are expected to master new software, learn computer hardware and embrace the Internet and other new technologies. Justice (1998) elaborates on this situation in an article aptly entitled "The Big Squeeze", in which she refers to the traditional subjects as being "squeezed" in favour of new technologies. A remark made by Blauvelt (1998:73) also rings true: "If the 1980's saw the drive towards design history, then the 1990's have witnessed a move towards theory." Blauvelt further argues that history gave life to graphic design by giving it a past and, by implication, a future. Theory, like history, serves to contextualise the practice of design in any number of ways, not the least of which is to position it in a relationship to other areas of intellectual inquiry.

Wild (1998) from the California Arts Institute has, for instance, noticed a trend in which most of their graduates are snapped up by multimedia firms. This trend led her to re-evaluate their curriculum to ensure that learners are prepared for the conditions that they would encounter once they graduate. In an essay entitled "That was then, and this is now:

but what next?" published in Émigré magazine (1998:39), she attempted to describe how to make graphic design studies more viable training for future designers. At the time she wrote that "design would have to be redefined as a conceptual practice, while graphic design would have to be more clearly identified as a speciality within it". Among other concerns, Wild has identified the following issues to be added to the existing curriculum in order to strengthen graphic design learners' conceptual skills:

- more attention to 'learning how to learn'
- study of the operations of verbal expression, rhetoric, semantics, and narrative and storytelling as part of a basic structure of communication
- techniques of collaboration, teams, negotiation and consensus building.

In contrast, Judith and Richard Wilde of Wilde Design in the United States, both accomplished graphic designers and lecturers, propose a 12-week required visual literacy class for all graphic design majors (1998). The course is based on traditional methods of teaching which include lectures, slides and weekly critiques on all assignments. According to the course summary, it is designed to foster a personal approach to conceptual problem solving while investigating the classical principles of graphic design and developing a visual vocabulary through experimentation that sets the groundwork that reinforces the learner's critical, analytical, and perceptual skills. The course is divided into 12 weekly design problems for which the learners must provide a variety of creative solutions. According to Wilde and Wilde (1998:227), "each assignment creates conditions where one discovers the language of graphic design and encourages conceptual thinking through exploration that results in original and personal imagery".

2.3 The South African context

In South Africa, as well as abroad, graphic design is becoming a very popular field of study. Although courses like graphic design are seen as glamorous and the right step to a lucrative career, they need to be supported by a sound theoretical base. The graphic

designer who has the world's most powerful communication tools at his or her disposal has the power to manipulate the consumer through the consumer's response to a particular product. Researchers such as Pienaar van Niekerk, former Head of Applied Graphics in the Department of Fine Arts at the University of Stellenbosch, South Africa, stresses the importance of social and moral implications surrounding the practice of visual communication when he insists that "one cannot create a culture of greed in a country such as South Africa where 38% of the population is unemployed" (Van Niekerk, 1998:2).

One must be aware of the status of design in academic institutions in South Africa. Design as a subject is only offered at three universities and has been relegated to being taught at more technical training institutions such as the former technikons and technical colleges. This, in itself, is problematic, as learners at universities, having passed more stringent entrance examinations, may be better equipped to deal with the concepts and methods of visual research. Van Niekerk (1998:3) calls attention to this challenge when he says: "Graphic design has become a profession in which growing complexities demand an increase in the number of institutions of higher education to teach with insight into nurturing a basic understanding of visual literacy ... I do believe (design) belongs in an 'art school' where fine art and interdisciplinary studies are taught. The commonalities between fine art and design are obvious ... the 'art school' demands a more philosophical approach to communication design."

The issue of learners' English language proficiency has been touched upon in the previous chapter. Institutions of higher education in South Africa have traditionally used English or Afrikaans as the language of instruction. According to the Ministry of Education, this dominance constitutes a formidable "barrier to access and success" for the vast majority of previously disadvantaged South Africans (Brand, 2003:28). Brand puts forward a very convincing argument for multilingualism at South African higher education institutions, citing improved results by the use of a learner's first language as the language of learning and teaching. Brand also notes that although it may be

reasonable to expect a high level of proficiency in English, Afrikaans or some other language from senior learners, it is certainly unreasonable to require this at the initial stages, especially in the case of learners (like the majority of matriculants in South Africa) who have never had an opportunity to acquire such proficiency. Brand (2003:30) argues that "this unreasonable requirement – or 'unjust imposition' as the Ministry of Education calls it in a recent policy document (Ministry of Education, 2002:12) – is at present standard practice in our higher education system".

Postmodern and poststructuralist critical theories such as deconstruction have more recently been finding their way from literary critical theory into the graphic design curriculum in some of the more theoretical design programmes. McCoy (1998:10) notes the following regarding theory:

> "[T]he deconstruction of meaning holds important lessons about our audiences for visual communicators, but poses some problems as well ... these theories applaud the existence of unstable meaning because of audiences' varying cultural contexts and personal experiences, this can be at odds with the client's need for a single, clear interpretation of the message."

A course labelled 'design theory' is rarely found in an institution. Hall (1995) describes design curriculum planning as "an impossible task" and Blauvelt (1998:73) critically notes that theory has crept into the design curriculum "through the back door" of history classes, seminars on design issues, and occasionally, in studio-based projects and assignments.

As much as a more philosophical approach to graphic design may produce designers who may be more socially and morally aware, educational institutions are under tremendous pressure from industry to produce learners who are ready for the workplace. One of the problems with the curriculum structure at many institutions of higher education in South Africa is that the subject History of Design is formally taught only at technical

institutions such as former technikons (now collectively known as Universities of Technology) and technical colleges. Van Niekerk (1998:3) supports the notion that, in order to produce a well-rounded, socially responsible graphic designer, Communication Theory and History of Design should be taught to all learners. On the other hand, the concern exists that theory may be too vague and abstract to be useful to graphic designers. Blauvelt (1998:71) states that "theory ... does not and cannot respond to the particularities of graphic design practice, rooted as it is in the materiality of the so-called real world".

Despite this, several models of theory incorporated into the graphic design curriculum do exist. A new graduate programme at North Carolina State University in the United States adopted a theory-based model of cultural production and consumption from research done in cultural studies. The model used recognises the important stages in the life of designed artefacts, from their production and distribution to eventual consumption. The entire realm of design was placed within a larger framework of society and culture, as both influence each other. The impact of digital media was considered on both graphic design practice and society from a position that is critical of the kind of technological determinism that is rampant in society and the graphic design industry today. The three areas of cognitive interaction, cultural reflexivity, and technological innovation form the core of interrelated discourses about graphic design practice. Theories which are linked to these discourses are introduced through seminars that range in contexts from cognitive psychology to perceptual studies and learning theory. Theories of representation drawn from anthropology, ethnography and sociology are discussed and theories of other media such as television, film, video and literature are introduced. These seminars are linked to studio courses that require a synthesis of these ideas and a successful application of theoretical ideas to studio projects (Blauvelt, 1998:76).

2.4 Visual versus verbal learning

The foremost goal of this section is to define learning and show how the learning process is studied as well as to examine some of the relationships that exist between learning theory and educational practices. Visual learning is an approach used to help learners communicate with imagery. The concept of visual versus verbal learning preferences comes from Paivio's (1991:255) *Dual Coding Theory,* which addresses a person's preferred method of processing information. This theory proposed that information is either coded in a network composed of language-based information (the verbal subsystem) or it is coded in a network composed of nonverbal information (the imagery subsystem). Becker (1998:61) suggests that although everyone codes information in both subsystems to some extent, individuals differ in their preferred representational style. Some people prefer verbal representations and others prefer visual representations. Prior experiences and innate ability may both play a role in determining a person's preference.

The key educational theories that are relevant to this study include Pavlovian theories of partial reinforcement as well as Skinner's influential theories on reinforcement and verbal learning. Burrhus Frederick Skinner (1904-1990) was born in Pennsylvania in the United Sates of America and received his PhD from Harvard University in 1931. One of Skinner's main concerns throughout his prolific career as a psychologist and writer was to relate his laboratory findings to the solution of human problems. His work led to the development of programmed learning and teaching machines. In order to appreciate Skinner's position on reinforcement theory, one must take into account his theories on the *primary positive reinforcer* as well as the *primary negative reinforcer.* The primary positive reinforcer is the stimulus attached to learning which is related to survival, such as food or water. A positive reinforcer, which can be either primary or secondary, is something that, when added to the situation by a certain response, increases the probability of that response's recurrence.

A primary negative reinforcer is something that is naturally harmful to the organism, such as an aversive high-pitched tone or an electric shock. Any neutral stimulus associated with a primary negative reinforcer takes on a negative secondary reinforcer's characteristics. A negative reinforcer, either primary or secondary, is something that,

when removed from a situation by a certain response, decreases the probability of that response's recurrence.

Skinner believed that verbal behaviour (language) can be explained within the context of reinforcement theory. Talking and listening are responses that are influenced by reinforcement just as any other response. Therefore any utterance will tend to be repeated if it is reinforced. Skinner was very interested in applying his theory of learning to the process of education by a system called programmed learning. It was Skinner's view that learning proceeds most effectively if (1) the information to be learned is presented in small steps; (2) the learners are given rapid feedback concerning the accuracy of their learning; and (3) the learners are able to learn at their own pace.

Interestingly, the most common teaching technique is the lecture, and the lecture violates these principles. As early as 1958, Skinner proposed an alternative to the lecture in a teaching technique that he called *programmed learning,* which incorporates all three principles. A device called a *teaching machine* was invented, much like the modern-day personal computer with Internet connection, to present programmed material. Skinner (1958) outlined the advantages of using the teaching machine as follows:

> "The machine itself, of course, does not teach. It simply brings the learner into contact with the person who composed the material it presents. It is a labour saving device because it can bring the programmer into contact with an indefinite number of learners. They may suggest mass production, but the effect upon each learner is surprisingly like that of a private tutor. The comparison holds in several respects. (i) There is a constant interchange between programme and learner. Unlike lectures, textbooks, and the usual audio-visual aids, the machine induces sustained activity. The learner is always alert and busy. (ii) Like a good tutor, the machine insists that a given point be thoroughly understood, either frame-by-frame or set-by-set, before the learner moves on. Lectures, textbooks, and their mechanized equivalents, on the other hand, proceed without making sure that the learner understands and easily leave him behind. (iii) Like a good tutor the

machine presents just the material for which the learner is ready. It asks him to take only that step which he is at the moment best equipped and most likely to take. (iv) Like a skilful tutor, the machine helps the learners to come up with the right answer. It does this in part through the orderly construction of the programme and in part with techniques of hinting, prompting, suggesting, and so on, derived from an analysis of verbal behaviour .... (v) Lastly, of course, the machine, like a private tutor, reinforces the learner for every correct response, using this immediate feedback not only to shape his behaviour most efficiently but to maintain it in strength in a manner which the layman would describe as "holding the learner's interest"".

Thus, according to Skinner (1958) programmed learning can be summarised as "a procedure that provides information to the learner in small steps, guarantees immediate feedback concerning whether or not the material was learned properly, and allows the learner to determine the pace with which he goes through the material".

2.5 Summary

In the past, graphic design education stressed vocational training as well as the creation of industry-ready learners. Until recently, large numbers of practising graphic designers had a background in fine arts, and many of the early luminaries of graphic design were self-taught. The professional practice of graphic design has developed rapidly over the years with the need for educational curricula to keep up. Generally, educational institutions have been slow to accept graphic design theory subjects as separate to fine art theory. Too often training in graphic design can be seen only in the context of vocational training. The face-to-face lecture remains the favourite lecture approach of most graphic design theory lecturers. Several arguments have been made which emphasise a more broad-based education in graphic design which would include an expanded theory component as well as a more philosophical approach. The publication of *A History of Graphic Design* by Phillip B. Meggs in the early 1980s had a profound impact on the teaching of graphic design theory subjects which were no longer bound to fine art theory

texts. In addition, until relatively recently, the teaching of graphic design history in South African tertiary education institutions was relegated to the former technikons and learners from these institutions had little opportunity to delve into subjects like critical theory and philosophy. More recent teaching practices include the emphasis on visually-based subjects such as digital video and 3D animation, which adds pressure on learners to become familiar with previously unknown technology and theories. Some institutions have addressed the lack of a philosophical approach in their theory graduate and postgraduate programmes but, generally, design education is still firmly rooted in what the industry demands. In the South African context considerations such as underprepared learners, lenient selection criteria and underfunding at University of Technology level need to be taken under serious consideration before expansion of existing curricula can be wholly embraced.

Visual learning at its most basic is helping learners learn through the use of visualisation and by the use of images. Skinner's reinforcement theories as well as Paivio's Dual Coding Theory are critical components of visual learning research. Visual research can be described as a formalist analysis that is limited to certain fields of study. Although they form crucial components in visual fields of study such as graphic design, visual learning styles are underutilised at educational institutions.

CHAPTER THREE

CO-OPERATIVE LEARNING PRINCIPLES

3.1 Introduction

The principles of co-operation, group work and therefore co-operative learning, affect most aspects of the graphic design field. This chapter discusses the concept of co-operative learning within the context of the teaching of a specific theory subject to graphic design learners.

Successful design consultancies have had to develop divisions within their own offices in order to handle the increased workload and cope with more complicated design projects. According to Wild (1998:40), large-scale design projects often require multidisciplinary teams because they span a broad range of media options. While graphic design education has sporadically paid attention to the need to train designers to work collaboratively, often their training is typically based on designers maintaining their specific identity as the originators of visual ideas.

The three goal structures for successful learning are co-operative, competitive and individualistic learning. This study focuses specifically on co-operative learning (CL) strategies or group work. Co-operation in the classroom or lecture hall exists on both the micro- and the macro-level. On a micro-level co-operation is one of the three goal structures used to build interdependence among learners. Co-operative learning provides a context for the other two goal structures. What is learned alone today is enacted in co-operative relationships tomorrow. On a macro-level co-operation pervades the classroom as a social system. In the classroom the two complementary roles of teacher and learner engage in role-related behaviour and conform to organisational norms. A successful completion of a task depends on the fulfilment of the organisational role requirements and adherence to these prescribed norms and values (Johnson & Johnson, 1994:16).

According to Vähäpassi (2001:available on Internet), two paradigms are current in education: the 'instructional' and the 'conversational'. The conversational paradigm can be seen as the basis of co-operative learning, small-group study, group dynamics and experiential learning. Co-operative learning can be regarded as a tool or a didactic means for organising small-group activities. Every group member does his or her own personal task, which is usually given by the teacher. Doing the task supports individual knowledge building (Johnson & Johnson, 1994:1017-1044).

Various educators and much professional literature offer abundant suggestions on how to establish the co-operative classroom (Cohen, 1994; Johnson & Johnson, 1994; Vähäpassi, 2001; Bitzer, 2004). Most of these researchers have focused on different aspects of co-operative learning. Some methods are more teacher-directed than others, but all of them emphasise the active role of the learners. According to Vähäpassi (2001), while there is variability in co-operative learning methods and strategies, certain similarities can be found. The majority of co-operative approaches are relevant as a background to collaborative and communal learning.

All approaches that are defined as co-operative learning methods should include positive interdependence, face-to-face promotive interaction, individual accountability, social skills and group processing (Johnson & Johnson, 1994:58-59; Vähäpassi, 2001).. Learners develop confidence in other people as well as in their work through their experience of co-operation and co-operative learning. At the same time, the learners' self-direction and responsibility for their learning will be developed. The positive and communicative climate of the co-operative classroom encourages learners to work together in small mixed-ability groups and to exchange materials, ideas and information through mutual help and interaction.

3.2 Principles of co-operative learning or group work

Avenant (1990:169) defines group work as "a form of socialization in which the teacher allows his pupils to work towards common objectives in groups, the intention being that

they will influence each other for the good and learn both for and from each other". One-way communication takes place when the lecturer gives a 'traditional' lecture or explanation. The onus remains on the lecturer as the learners sit passively while the lecturer does the talking, thinking and explaining. As soon as the learners get involved in any kind of group discussion, they accept co-responsibility for the relevance of the facts and the eventual outcome of the project.

Recently, many claims have been made regarding the effectiveness of co-operative learning (CL) or group methods, but, as Peterson and Miller (2004:161) state, "the use of CL has become widespread at all educational levels," and "a great deal of research has supported the effectiveness of CL". Avenant (1990:170) supports this viewpoint when he states that "research has shown that educational objectives can be achieved extremely effectively by group methods".

To date, co-operative methods have been successfully incorporated into the graphic design learning environment. Behrens (1998:99) cites an example of a teaching device he called the "ricochet technique" but what was a form of game play group work. The ricochet technique worked on the premise that a graphic design problem was presented to the class and the class had a week to finalise a solution to the problem. The solutions, unsigned and hidden by cover sheets, were randomly unveiled on critique day and each learner, in turn, was required to choose any single solution, except his/her own and present it as if he/she had created it. As the critique progressed, other participants in the class, including the work's originator, were encouraged to make comments and observations. Behrens (1998:99) found the ricochet technique a "fascinating game-like teaching method" but he did comment that it was "exhausting for everyone concerned, and to critique the problem was almost as challenging as finding a solution to one". He cites developments such as that "learners spoke more freely about the work of their peers ... were less offended by open criticism" as being beneficial to this form of improvisational role playing. Behrens (1998:101) recognises the potential limitations of improvisational teaching as a component of co-operative work by stating that it requires "resourcefulness, quickness, and wit on the part of the teacher" and that it is difficult to

introduce into the curriculum as "colleges and universities ... are transformed into compliant, unimaginative trade schools".

3.2.1 Basic requirements for effective group work

Mills and Woodall (2004:477) state that group project work has gained increased acceptance as a learning tool at all levels of education. Group work and group projects can be used to achieve the same basic range of objectives as conventional practical and project work and, in addition, help participants develop the various interpersonal skills that are so essential in later life. Ellington *et al.* (1995:119) observe that

> "the constructive exchange of ideas and division of labour associated with group projects can make such exercises far more useful learning experiences than individual projects, with the group being able to produce work of a quality that would probably be completely beyond even the best learners if they had to work on their own".

Mills and Woodall (2004:477) further point out that evaluating the success of group work can be difficult and that researchers have investigated various aspects of group interactions to gauge the outcomes. The Gatfield (1999) study examined learners' satisfaction with group work, while other studies such as those by Kagan (1995), Boud, Cohen and Sampson (1999) and Bitzer (2004) investigated the effectiveness of assessment tools, including those related to peer- and self-assessment, used within group studies to grade the learning experience. Ellington *et al.*, together with other researchers like Vähäpassi and Bitzer, also acknowledge that one of the weaknesses of group work is the need to ensure that all participants play an equal role in the group work; as it is easy for a less-motivated group member to opt out, leaving the other group participants to do all the work. An associated problem with group work is that of assessment. Although it is fairly easy to asses the work as a whole it is difficult to assess an individual's contributions to the group work. This can be overcome by monitoring the group with supervisory staff (which can be counterproductive), or building in an element of peer

assessment into the assessment process by asking each member of the group to award every other member a mark to reflect his or her evaluation of their respective contributions to the work.

Mills and Woodall (2004:477) quote Freeman (1995) as saying that "by placing learning responsibility on the learner, group project work enhances deep learning". Gatfield (1999) emphasises that the development of transferable skills, such as teamwork, oral communication and decision making, as well as socialisation skills, are of equal importance at the undergraduate level.

This trend in higher education is placed within the framework of a constructivist mode of learning (Chalmers & Fuller, 1996), which emphasises a change in focus towards understanding the individual learner. Bitzer (2004:44) mentions the seminal article by Robert Barr and John Tagg who, in 1995, recognised the paradigm shift in higher education away from the traditional focus on teaching (utilising traditional methods such as the standard lecture approach) to a focus on learning. Cuthbert (2005) suggests that particular attention is now paid to the way in which learners acquire data and relate it to existing knowledge, the ways in which learners process the knowledge to gain understanding, and finally how the learners demonstrate the quality of what they have learned. Recent literature has emphasised the importance of the role of the teacher and tutor as facilitator, or knowledge creator, rather than acting in a didactic role (Sweeney *et al.*: 2004; Bitzer, 2004). The co-operative approach requires that the learner be guided by the facilitator whilst being involved in the creation of learning through his or her own thinking.

There is a gradual move towards introducing appropriate teaching methodologies in former technikons across South Africa. This approach would enable learners, who have been trained in the use of outcomes-based education strategies at school level, to cope more effectively with the higher education learning curriculum. While discussing a

rationale for co-operative learning Bitzer (2004:45) notes that "critical cross-field outcomes as promoted by the National Qualifications Framework should be contextually demonstrated by learners in all higher education programmes". Co-operative learning supports the learning paradigm as implied by critical cross-field outcomes.

3.2.2 Avenant's requirements for successful group work

Although other models for group work exist, I referenced Avenant's group work model extensively in order to successfully implement a group-work model for the History of Art and Design 1 group at the Vaal University of Technology. Whilst conducting research on group work and collaboration it was noted that in education group work is most often used when working with children and adolescents. It was a challenge to find a model that could be implemented within a tertiary education setting. Although Avenant's model is also aimed at adolescent learners it was one that could be easily appropriated and, barring a few small changes, could be utilised at the VUT. Therefore the Avenant model remains the primary source for this study. It was compared to other contemporary sources, specifically to the Bitzer (2004:54) and the Belbin models (2006:available on Internet) as well as the study conducted by James, McInnis and Devlin of the Centre for the Study of Higher Education in Australia (2002:available on Internet).

Most researchers when discussing co-operative strategies will mention basic requirements that need to be fulfilled in order for co-operative learning to be successful. Bitzer (2004:48) mentions key functions that need to be fulfilled by group members in order for the group to be effective. These functions can be either task-oriented (help accomplish the group outcome) or maintenance-oriented (prevent the disintegration of the group). The following is a list of such basic requirements as proposed by Avenant (1990:171):

a) Group work can occur meaningfully only if the pupils perceive a clear goal which is worthy of pursuance.

b) All of the pupils must feel that they have a contribution to make to the group. It is necessary to have a discussion in which they all participate beforehand.
c) Effective group work provides sufficient opportunities for the pupils to work on committees.
d) Individual pupils must be taught to work together with their friends in the group context.
e) Good group work is based on democratic procedures.
f) Effective group work provides for leadership development.
g) Effective group work is characterised by constant evaluation.
h) Effective group work meets the pupils' needs for security and acceptance.

Perceived advantages of group work exist. It is presumed that as each learner is willing to be meaningfully involved he or she listens and contributes more attentively and therefore retains more information. Bitzer (2004:48) discusses the concept of "positive interdependence" as well as "promotive interaction" which stresses the importance of learners' sharing information, resources and providing feedback and thereby demonstrating enthusiasm in the co-operative task.

Avenant (1990:172) lists the advantages of group work as the following:

a) Constant interaction between the individual and the group. Feedback takes place immediately, opinions are more easily altered, mistakes are more easily discovered and misunderstandings more easily eliminated. Because the pupils are more actively involved, their creative abilities develop ... and in-context viewing and comprehension are promoted.

b) Pupils are more motivated and are consequently encouraged to reason sensibly, to investigate and to seek answers to questions.

c) Pupils seek answers more actively.

d) Forced to partake in discussions, pupils acquire social skills ... and therefore leadership characteristics are cultivated more quickly.

e) Group work also provides the teacher with the opportunity of getting to know his pupils better.

James *et al.* (2002:available on Internet) contend that the main advantages of group work and group learning are that these approaches can contribute to improving the overall quality of learning, and help learners to develop specific generic skills that are sought by employers. Furthermore, it may help to reduce the facilitators' workload with regard to assessing, grading and providing feedback to learners.

Avenant (1990:172) states that the perceived disadvantages of group work include the use of group work "as a matter of course". James *et al.* (2002:available on Internet) also list "overuse" as a common concern. Avenant (1990:172) further mentions that the learners might find the problems too difficult, that group leaders may not have the required leadership qualities to lead the discussions, and that group work could waste valuable time. In order to participate actively in group work, learners need to feel that the subject to be discussed is relevant to the remainder of their course. Irrelevance can result in learners not participating actively in the discussion. The lack of perceived relevance is also a concern for James *et al.* (2002: available on Internet): "There is an alternative view that employers focus on employing an individual, not a team, and that the way group work is carried out and assessed in universities is rarely the way it is carried out or evaluated in the real world of the workplace."

In order for group work to be successful, it should occur in a thoroughly organised and scientific manner – each learner should be aware of his or her position within the group and be encouraged to learn within the context of co-operation. It remains a matter of debate whether or not there is a best model for group and co-operative work. According to James *et al.* (2002:available on Internet), "imposing one or other model may impede learning and prevent effective cooperation". Their study stresses the importance of viewing the classroom situation in context, since some learners may prefer to be guided by a clear model whereas others may enjoy a less formal approach. James *et al.*

(2002:available on Internet) also confirm that "explicit and transparent procedures should be made available and explained to students undertaking group work".

According to the Belbin model (1993:6), the accurate delineation of group roles is critical in understanding the dynamics of any work group. Belbin's definition of group roles is based on a specific type, the contributions made by that role-player as well as any weaknesses that role type may exhibit. Belbin's theory of "team roles" is based on the premise that optimal group functioning is only possible once group members relegate their weakness to other group members who posses these skills as strengths. Bitzer (2004:49) adds that the group's need for a greater variety of members who can perform different tasks and have various skills depends entirely on the complexity of the group work. Although the Avenant, Belbin and Bitzer's approaches differ slightly, they are, to some extent, comparable. Similarly to Avenant; Belbin and Bitzer have identified several key positions within a group.

Avenant (1990:174-177) lists the following as key positions within the group:

a) the group leader
b) the group secretary
c) the observer
d) the source-person
e) the members.

According to Belbin (2006:available on Internet) the other positions in the group can be listed as follows:

> "The "plant" – someone who is creative, imaginative and unorthodox. The "plant" solves difficult problems. The "implementer" is disciplined, reliable, conservative and efficient. The "implementer" turns ideas into practical actions. The "completer finisher" is painstaking, conscientious and anxious. He/she searches out errors and omissions and always delivers on time. The "shaper" is a participant who enjoys a challenge, is dynamic and thrives on pressure. The "shaper" has the drive and courage to overcome obstacles. A

"teamworker" is co-operative, mild, perceptive and diplomatic. The "teamworker" will listen, build and avert friction. Finally, the "specialist". Single-minded, self-starting and dedicated the "specialist" provides knowledge and skills that may be in rare supply in the remainder of the group."

According to the Avenant (1990:177), model group work can take many forms, such as class discussions, the learning conversation, the socio-drama, play or social activities, symposiums, panel discussions, horseshoe groups, the forum, the round table, co-operative groups, buzz groups, core team activities and think-tanks.

In group work it is the role of the facilitator to intervene only when called upon. Bitzer (2004:52) elaborates on the role of the facilitator by stressing that it is vital that the facilitator intervenes when the situation calls for it. According to Bitzer (2004:53) various forms of facilitator intervention which could take place range from the "prescriptive" and "informative" to the "cathartic", "catalytic" and "supportive".

Avenant (1990:186) further argues that "regardless of the format, group work is an important form of learner socialisation". Learning cannot be reduced to a relationship between facilitator and learner or learner and subject matter – it is a constant interaction between individuals. In two comprehensive reviews of research into co-operative learning and group work, researchers such as Slavin (1996) and Webb and Palinscar (1996) argue that many important questions remain to be investigated. An important aspect of the co-operative learning experience is learners' motivation and quality of experience during group work.

3.3 Learners' motivation and quality of experience during co-operative learning

Peterson and Miller (2004) investigated the quality of learners' experiences during co-operative learning in order to understand learners' motivation through co-operative

learning as this is an important influence in their achievement as well as in their appreciation of the co-operative learning experience.

Previous research has also concentrated on the motivational frameworks which exist within the co-operative learning experience. Slavin's (1996) research noted that learners were able to meet their own personal goals only if everyone in the group also met their goals. Vähäpassi (2001) says learners who fail to comply with this objective make themselves guilty of "piggy-backing".

Peterson and Miller (2004:162) argue that co-operative learning involves a complex interplay of individual learners and contextual variables, the nature and structure of the learning task, and the co-operative learning group as a social system. They place much emphasis on viewing co-operative learning as an instructional context in order to consider the increasing importance of the social nature of learning. Therefore it is important to examine the learner's motivation and quality of experience within the co-operative learning framework.

In order to understand the motivation for co-operative learning within a social constructivist framework, several variables need to be considered. These variables include background characteristics of learners participating in a co-operative learning experience, such as age, gender, and academic ability; learners' prior experiences as well as cognitive and affective beliefs relating to the course. The final variable includes the social and cognitive dynamic which exists among participants of the co-operative learning group. These perceptions change according to how well the group may know each other and are influenced by prior experiences. If a co-operative learning group has met in the past, these dynamics will be based on the history of the group interactions and be situated in the current activity as well. These variables also include the individuals' perceptions of the co-operative learning activity in which they are immediately engaged, including perceptions of the self as well as of the learning task.

The seminal study by Peterson and Miller (2004:168) considered motivation as it is situated in co-operative learning by examining the role of individual differences in learners' personal background characteristics, their cognitive and affective beliefs about their learning in general, as well as their specific perceptions of a contextualised co-operative learning task. In their study, instructors assigned undergraduate education major learners to heterogeneous base groups where they were given assignments based on the learners' teaching certification area, their gender and writing skills. The major assignment was the development of an individual learning project for the area in which they were qualifying to teach. The learners met at regular intervals within their base groups and discussed how each learner could apply important key principles of development and learning to their projects. The learners used a modified version of "jigsaw" group work wherein each learner in the group is responsible for teaching his or her key principle to the other participants of the group. The groups also became peer editorial assessment boards at the end of the semester when the groups met for the purpose of publishing their papers in a classroom journal.

Furthermore, the Peterson and Miller study indicated that the quality of experience during co-operative learning tasks depends largely on the importance of the task to learners' goals and on the learners' perceived skills for the task, rather than on pre-existing individual differences in abilities and beliefs that learners bring to the learning group. The importance to co-operative learning therefore is that lecturers should focus their attention on designing suitably challenging tasks that enable learners to reach their goals, and ensure that learners are pre-equipped with the necessary skills for succeeding in these tasks (Peterson & Miller, 2004:181). According to Johnson and Johnson (1994:12), "[c]o-operation pervades human nature and human life. From our most basic biological make-up to our ability to accomplish feats we could otherwise not do alone, our successes require co-operation among individuals."

3.4 Co-operative learning strategies and their implications for outcomes-based education

Co-operative learning is also an effective strategy in helping learners understand and retain information and in improving their basic skills. It is a global term that encompasses a wide range of teaching strategies. Within this umbrella of teaching methodologies are different theoretical traditions, some of which overlap. Teaching strategies will inevitably influence learning strategies and the results obtained by learners in various learning groups.

Traditionally, education is characterised by a philosophy that there is a certain body of information which the training institution needs to present to its learners. This body of information is known as a curriculum. Each department in a training institution designs its own curriculum; this information is relayed to the learners, who in turn are required to complete a number of modules in order to graduate. A credit for each module is earned when a learner completes the prescribed instruction. By taking a test or examination and thus achieving a passing grade, the learner demonstrates that he or she has mastered the information within that subject. When the total credits reach the required number, the learner is eligible for graduation. If a learner fails to achieve a passing grade in a subject, no credit is given until the learner takes the class again and gains the passing grade.

The outcomes-based education approach, which is becoming more relevant in South African schools and tertiary education institutions, entails a process of continuous assessment. Van der Horst and McDonald (1997:7) describe outcomes-based education (OBE) as "an approach which requires teachers and learners to focus their attention on two things ... the desired end results of each learning process ... [and] ... instructive and learning processes that will guide the learners to the end results". They regard OBE as a learner-centred, results-oriented approach, in which

- learners should be allowed to learn to their full potential;
- positive and ongoing assessment should promote learner confidence;
- learning environments should be inviting, challenging and positive, and

- multiple stakeholders, like teachers, learners, parents and the community should share responsibility for quality learning.

Similarly, Geyser (2004:144) defines OBE as "clearly focusing and organising everything in an educational system around what it is essential for all learners to be able to do at the end of their learning experience". Applying the co-operative learning approach focuses the learning that takes place on the group rather than on the individual or facilitator and thereby meets one of the challenges posed by OBE. The challenge to tertiary education institutions is to enable learners who have come from an outcomes-based school environment to cope with the tertiary education curriculum. Engelbrecht, du Preez, Rheeder and Van Wyk (2001) have conducted a study at the former Technikon SA which determined how to meet the challenges of including and recognising OBE qualifications. One method is to include more learner-centred approaches such as co-operative learning methods which include group work.

The graphic design department at the Vaal University of Technology has met this challenge by utilising some continuous assessment methods, such as portfolio assessment, when allocating the final marks for the learners' practical work at the end of each year. This practice is common to the assessment of practical work at most design institutions in the country and the showcasing of portfolios is also frequently done in the graphic design industry.

Moreover, the methodologies behind co-operative strategies, as utilised by OBE, are that learners can be taught how to succeed as long as each learner's needs for the learning experience are met through the learning environment which is conductive to OBE methods. Learners are encouraged to meet their goals in their own time, and are taught that achieving success will breed more success. While OBE strategies teach learners to be actively involved in the learning process, problem-solving techniques and the ability to work towards a specific outcome, this approach may not always be feasible in a learning environment. Strategies like co-operative learning and group work can be utilised in the classroom in order to re-create the OBE experience for the learner. Some negative aspects

of OBE in the teaching of graphic design are based in the reality of the needs of the industry which the learners have to meet. The learner cannot work at his or her own pace, as a client-determined deadline must be met. Continuous assessment is also extremely time-consuming and may not be feasible in a setting where budget may not allow for more teaching staff or tutors to assess the work.

A number of studies have been conducted on the value of the 'non-controlling' classroom such as the co-operative or group-work classroom (Duke, 2004:244; Ellington, 2004:49; Schuter, 2000:available on Internet) and practical guidelines for the operation of such a classroom are relatively easy to locate. As the value of outcomes-based education becomes clearer it is essential that learners become more accountable for their own learning practice. In order to achieve results, learners need to use the co-operative learning model rather than sit passively in the classroom or engage in group work whilst still working as individuals.

3.5 The evaluation of co-operative learning strategies

On a most basic level co-operation means working together for a common goal. In order to do this successfully a certain degree of fairness and reciprocity is required in the process. If all the role-players involved pull their weight and contribute effectively, then the task will be done more quickly than if one person was doing it. Moreover, tasks that are impossible for one person can be achieved.

If one person exploits others in the group through 'piggy-backing', the outcome can be a dynamic that is not co-operative at all and can result in resentment and possibly, the abandonment of the group effort by the other group participants. Cowie (1997:47) comments on this aspect in the following way: "Social existence requires everyone to do their bit and for there to be sanctions against laziness or disruptive behaviour." Research done on the 'evolution of co-operation' shows that purely unselfish behaviour is unlikely to be widespread. The results of a study done in 1981 by Axelrod and Hamilton indicated

that a tit for tat learning and working strategy was the one most likely to succeed. This strategy has three important aspects:

- You are prepared to trust and work with your partner (group member) from the onset.
- If your partner (group member) lets you down by cheating or not reciprocating then you will stop trusting him or her.
- If the cheating partner reforms and is prepared to work with you again, you too will resume working with him or her.

The tit for tat policy embodies fairness and reciprocity, it presumes trust within the group dynamic unless disillusioned, and is prepared to forgive mistakes when forgiveness is justified. Co-operation therefore, does not mean trust or unselfishness at any cost – it operates within reasonable levels of tolerance.

Co-operation within a group work structure should not be confused with friendship. It is possible for people to co-operate without being friends. People who have social links are more likely to co-operate with each other, but the concepts are not mutually exclusive (Cowie *et al.*, 1994:192). In order for co-operative learning to be successful, the lecturer needs to make a transition in the classroom to incorporate new learning styles. Where working individualistically seems to have produced poor results, trying new teaching and learning methods seems an obvious solution. Cowie *et al.* (1994:48) state that "co-operative group work depends on a shared commitment to the task and a negotiated understanding of the rules and procedures appropriate to that particular group".

Theoretically co-operative learning makes educational sense, but several researchers have expressed doubts about the effectiveness of small-group work currently practised in schools. Dunne and Bennet (1991:584) have done extensive research into the actual talk that goes on when learners are doing co-operative or group work and have revealed some disturbing findings. It was not that learners failed to remain focused on a task, but rather

that their talk was not task-enhancing. Their study reveals that the missing ingredient to successful group work is co-operation. The innovative practice of group work was being undermined by the persistence of more traditional classroom values. It is imperative that the grouping of learners becomes more than an organisational device. It is worrying for the lecturers that without constant supervision even adult learners will not stay focused on the task. A concern is that learners will adopt certain roles within the group that are not conductive to learning. These roles could include the dominant member who overrules all others; the hitch-hiker who sits back whilst everyone else does the work; the clown who distracts everyone from the task; and the isolate who is marginalised by the group (Cowie *et al.*, 1994:59).

There are some conditions under which co-operative learning is more effective than traditional methods of instruction. One of these is relevant to the teaching of almost any subject at an institution of higher education in South Africa – co-operative or group work in a multi-ethnic or multicultural environment.

3.6 Co-operative learning in a multi-ethnic environment

A number of studies have been conducted on using co-operative learning methods in a multi-ethnic environment. Education in the South African context since the first democratic elections in 1994 can be summarised by one word: "transformation". The imbalances of the past need to be addressed by ensuring the equality of the learning experience for all learners. The typical ethnicity distribution in a first-year graphic design classroom at the Vaal University of Technology has changed from predominantly white (90% in 1992) to predominantly black (by 2003). In an institution such as the Vaal University of Technology where learners come from a vast variety of backgrounds, and generally do not speak the language of instruction as a home language, co-operative learning may be seen as the great leveller. One must take into consideration the diversity of the type of schooling experienced by learners at school level and, although the

entrance examination into the graphic design course focuses on several areas, it does not focus on a design historical theory background. One is also faced with the problem of the high standards required by the graphic design industry whilst keeping in mind that in order to create access to the subject one cannot be culturally exclusive.

Cohen (1994:16) states that –

> "Co-operative tasks are an excellent tool for the learning of language and the improvement of oral communication. In any setting where language plays an important part in the learning process active practice by the learners is essential. Recitation and drill are of limited effectiveness, producing much less active practice than a group exercise where learners talk to each other. In a review of research on second language acquisition in co-operative learning, Mary McGroarty (1989) finds evidence that learners gain both in comprehension and production of the second language. She finds that tasks used in co-operative learning foster many types of verbal exchange. There are more possibilities for fluent speakers to tailor speech and interactions so that they can be understood by the less proficient speaker. Even when all learners in a group lack fluency in English, the learners will correct each other and attempt to fill the gaps of their understanding by repairing and rephrasing what their partners say in order to come to agreement."

Considering the multi-ethnicity of most graphic design courses at institutions of higher education in South Africa, it has been suggested that for the purposes of this study the focus on improving learner results would be in the diversification of learned study methods to include co-operative learning strategies. Cowie *et al.* (1994:61) states in this regard that "the challenge of a multi-ethnic classroom highlights for teachers the value of co-operative learning in developing positive relationships among learners". Learners who work together, report that they enjoy learning more than when they are encouraged to work individually. A study on school children in Israel, concerned with the drop in self-esteem which occurs so often when minority children enter a multi-ethnic environment,

compared the impact on self-esteem of three types of intervention – co-operative learning in small groups, an approach that focused on social relationships, and an intervention that combined both these approaches. The study found that although all three approaches had had an impact, the interventions that included co-operative learning had the most positive impact on self-concept. The recommendations made were to integrate academic work with social elements (as co-operative group work does) when designing appropriate teaching methods in multi-ethnic classrooms. Cohen (1994:17) argues that co-operative groups and teams are particularly beneficial in developing harmonious relationships in desegregated classrooms.

It may be appropriate to consider the recommendations made in this study in the context of a multi-ethnic tertiary education classroom. Cowie *et al.* (1994:61) also notes a study conducted by Slavin in 1983, in which 14 co-operative classroom experiments whose groups were ethnically and/or racially mixed were reviewed. In 11 of these studies there were significantly more friendship choices across racial and ethnic lines among those learners who had worked in co-operative, interracial groups than among learners who had not had this opportunity.

3.7 Summary

In order to work successfully in a graphic design environment, designers need to learn how to work as part of a group. Co-operative learning is the core component of the three main goal structures of group work and is already present in most social and educational systems.

Several requirements need to be met in order to foster successful co-operative learning relationships. Most importantly, learners must perceive a clear goal which is worthy of pursuance, and all participants within the group should feel that they have a meaningful contribution to make to the success of the group. Effectual group work is based on

democratic procedures. It is important that neither the facilitator nor any appointed group leaders take an authoritarian attitude towards the other participants of the group.

Co-operative learning strategies can also be utilised successfully in order to meet the requirements for outcomes-based education which is becoming more widespread in the South African education system. Co-operative learning has a proven success rate in a multi-ethnic setting where learners of different cultures need to work together as a team.

CHAPTER FOUR

RESEARCH METHODS

4.1 Introduction

The empirical component of this study is introduced in this chapter. The need for the study as well as the perceived reasons for the low examination results for the subject History of Art and Design 1 at the Vaal University of Technology (VUT) is defined. The implementation of the exploratory study is discussed and explained.

At the VUT, the subject History of Art and Design 1, which forms part of the broader curriculum for graphic design learners, has been plagued by weak examination results, which have been affecting the overall performance of the learners negatively. The subsequent low throughput rate raises the question whether the current teaching methodologies are of optimal benefit to the learners, or whether alternative teaching methodologies such as visual learning and co-operative learning would be better options.

4.2 Research methods

The study was carried out with the participation of first-year graphic design learners at the Vaal University of Technology in 2002, 2003 and 2004. The sample consisted of all first-year learners enrolled in the full-time graphic design course at the VUT between 2002 and 2004. The minimum requirement for a person's inclusion in the sample was that he or she should be a first-year learner enrolled in the full-time graphic design course at the VUT between 2002 and 2004. Limitations of the chosen sampling method were the reliance on the available subjects during the course of the exploratory study (2004) as well as a limited sample size.

As first years, the learners come from various secondary educational institutions and have therefore been exposed to a variety of teaching methods and approaches. As place in the

graphic design department is limited the sample size of learners participating in the study was seldom over 45 and only once was as high as 50. In the first year and second year of the study (2002 and 2003) the curriculum and teaching approach in the subject History of Art and Design 1 remained unchanged from previous years and were regarded as a control. In order to asses the success of this method the end of year examination results were consulted. The end of year results from those years remained mediocre (see Annexure G). In 2004 the first-year class experienced a curriculum that involved the same subject content but with elevated levels of co-operative group work as well as a more visually-based approach (added access to visuals, video and images). The exploratory study took place in the fourth quarter of that year. In order to assess the appropriateness of this method for the teaching of the subject History of Art and Design 1 at the VUT an exploratory study involving questionnaires as well as focus group interviews was undertaken with the participating learners. In addition, records that included class attendance, and test and examination results were kept in order to assess the success of the new approach throughout that year and not only during the course of the exploratory study. What was most important to the study was not an increase in the learners' throughput for that year (although this would have been viewed as an added benefit) but how the learners experienced and responded to these new approaches.

Although methods that include trust-building exercises, problem solving, role play activities, co-operative games and discussion groups have been successfully utilised by researchers dealing with younger groups, not all these actions were utilised in the content of this study, in view of the more mature age of the participants as well as time and curricular constraints. The lecture sessions employed as part of this study in 2004 included an increase in visual information used in combination with discussion groups, group reporting and debriefing as well as group research projects. The qualitative data was obtained using mostly open-ended interviews with the learners at the end of each semester in order to evaluate their personal reactions and observations of visual learning and the group work.

This study dealt specifically with the teaching of the subject History of Art and Design 1 to first-year learners at the Vaal University of Technology. The aim of the study was to investigate the feasibility of utilising visual learning and co-operative learning strategies in combination with each other in order to measure how first-year learners in graphic design experienced visual learning strategies, co-operative learning strategies, and the combination of these. The exploratory study was implemented in 2004 with a total of 43 learners, all of whom were enrolled for the subject History of Art and Design 1. In the context of the learner enrolment numbers for this subject at other tertiary education institutions in South Africa, this number of learners may seem low, but it is an average at the Vaal University of Technology. In 2005, independently of this exploratory study, a new, work-intensive generic module was introduced whereby learners were encouraged to follow a self-study introduction to History of Art and Design 1, which included a continuous assessment curriculum in the first semester followed by a condensed and subject-specific History of Graphic Design course in the second semester. Although provision was made for the inclusion of far more visual materials and so-called interactive learning (excursions, etc.) in the generic module, it is too early to determine whether or not this approach will prove more successful as examination results will only be available in January 2006.

Discussions conducted with lecturers at other tertiary institutions in the Gauteng area revealed a standard 'lecturer-in-front-of-class' approach that was employed by most lecturers in the teaching of this subject. In most cases history was taught aurally – the lecturer speaks and the learners listen. In the majority of cases the learners were encouraged to take notes and ask questions but learner participation in these activities was voluntary and few learners chose to contribute actively in the class. Although most lecturers recognised that this was far from the ideal they cited problems such as time constraints and over-burdened curricula as obstacles that prevented them from teaching in a more inclusive visual or co-operative way.

In addition, the prescribed books offered information regarding visuality and visual concepts but the challenge lay in demonstrating and thoroughly discussing these concepts

during the time constraint of the history lecture. This issue has been recognised as challenging at the Vaal University of Technology and the introduction of the generic module, which is held over a longer period of time and, in a more interactive way, where learner participation is encouraged, should deal with this problem in the future.

At the time of writing, some of the aims and objectives of the teaching of the History of Art and Design 1 at first-year level at the Vaal University of Technology can be summarised as follows: The History of Art and Design 1 supports the practical components by developing the learners' aesthetic and critical abilities. The learners are given the tools that will enable them to understand and analyse art and design: the structure of art, the functions of art, the styles of art and the interaction of medium and meaning. The broad-based chronological study of the History of Art and Design 1 should enable the learner to identify design styles from different periods and to gain an understanding of historical contexts that led to certain design phenomena in the past (the social, political, economic and technological background which feeds into graphic design as a psychological expression of its time). This approach should support the learners' practical work by enabling them to anticipate future design trends. Furthermore, the learners are equipped to reason about design judgments and to present them orally before an audience and in writing.

According to Stockdale and Williams (2004:37-38), a review of effective teaching strategies for undergraduate college courses suggest that the most common delivery approach (lecture) is only effective when the learning goal is memorisation of factual material. When increased higher-order thinking is a course goal, the lecture method is found to be inferior to methods that promote higher-order, engaged learning. Gravett (2004:24) notes that the quality of the outcomes of the learning is related to the approaches adopted by the learners. What is desirable in higher education is what is known as a deep approach where significant learning takes place. A deep approach is less likely to take place under unfavourable conditions and where assessment practices implicitly require rote learning. According to Gravett (2004:25), factors that encourage learners to adopt a deep learning approach include "teaching by engaging students rather

than teaching to expound information". Co-operative learning (in a myriad of forms) has been proposed as one viable method for facilitating learner engagement in learning, even in large classes.

Stockdale and Williams (2004:38) further discuss one of the most widely used co-operative approaches, Learner Teams- Achievement Divisions (STAD), which is structured to allow learners in mixed-ability teams to master teacher-presented material in preparation for individual testing. Each group member attempts to assist every other group member in preparing for a test that will be taken individually. Typically, group rewards in STAD are based on inter-group competition with respect to group improvement on the test, a determination based on individual improvement within the group. Another popular framework is Jigsaw II, in which each individual in the group has a special assignment (read a certain chapter, explore a website) and then subsequently reports his or her findings to the total group. Stockdale and Williams also mention, two dimensions of reward structure typical to the findings of researchers like Slavin (1996) – individual accountability and group reward.

4.3 Cognitive learning objectives

The term *learning style,* according to Cuthbert (2005:236), describes an individual's preference for understanding his or her experiences and transforming them into knowledge.

Before considering the various learning styles it is appropriate to consider first what is associated with the term *cognitive (learning) style*. This term is used to denote an individual's preferences for particular ways of gathering, processing and storing information and experiences. Cuthbert (2005:236) notes that studies such as the Riding study (1997) identified that the individual's cognitive style will result in his or her having certain learning preferences based on those ways of handling data that he or she finds easiest.

Manuel (1994) points out that cognitive learning objectives can be described as those dealing with the memorising of facts and the solving of intellectual problems. In a subject like History of Art and Design 1 this objective is met through the recollection of historical knowledge. This is later applied utilising visual learning strategies through film, video or other sources of visual stimulation, and the viewer's intellectual abilities and techniques can be effectively developed. Manuel (1994:73) cites Bloom and his associates that have listed the various cognitive learning objectives as: knowledge, application, analysis, synthesis and evaluation. These can be elaborated on as follows:

- Knowledge: When exposed to any visual data such as a film or video, the learner should be able to recall the information portrayed on screen. This recollection has to have reference to the curriculum and may include the identification of the setting or the historical context. According to Manuel (1994:73) "viewing should be a deliberate and active process involving both the logical and creative aspects of the brain thereby optimising the recollection of factual data".
- Understanding: The recognition of key concepts as portrayed by visual data.
- Application: In order to put the visual learning components in context, the learner is expected to apply previously learned knowledge. The knowledge of certain events, people and places acquired previously through other methods of learning, is also applied to clarify present cognition of an approach or learning material.
- Analysis: The learner should be able to analyse relevant visual data in relation to prior learning and the syllabus.
- Synthesis: Synthesis implies the integration of the previous points. This is applied when recollecting, critically discussing or evaluating the material learned.
- Evaluation: Evaluation is the most complex cognitive level. Here the learner employs his or her ability to judge and make certain conclusions based on acquired knowledge.

Furthermore, according to Manuel (1994:73),

> "using film and video in the teaching of historical subjects allows for the critical higher cognitive skill of evaluating objectivity. Since pictures are not truth, but rather the filmmaker's interpretation of the truth this creates the

ideal opportunity to assess historical accuracy, bias, propaganda, and the intentions of the filmmaker."

Since it is a given that learners at tertiary education level are capable of drawing conclusions from visual material as well as linking the content to the syllabus, the challenge lies in fostering a collaborative construction of knowledge whilst utilising visualisation techniques.

According to Fischer, Bruhn, Grasel and Mandl (2002:216), an array of studies on co-operative learning techniques has shown that efficient learning is rarely achieved solely by bringing learners together. In order for the discourse to attain a certain depth, learners usually require supportive instruction. Different forms of support for the collaborative construction of knowledge have been developed and evaluated.

Furthermore, various visualisation techniques, from a group watching and thereafter discussing a video to concept mapping, have been used to facilitate the collaborative construction of knowledge. However, based on a study done at a large state university in the United States by Stockdale and Williams (2004), co-operative learning strategies may have a detrimental effect on the learning achieved by previously high-achiever learners. It was observed that learners who had obtained low and average scores on the preceding examination improved significantly during co-operative study, but the previously high-achievers decreased somewhat.

When employing any framework based on co-operative learning one also needs to take into account the potential role of personal background characteristics and beliefs. As suggested by Peterson and Miller (2004:164) within a social constructivist framework of motivation, individuals come to co-operative learning experiences with personal background characteristics and previously developed sets of cognitive and affective beliefs based on their prior experiences. Several individual difference variables may be considered for a study dealing with co-operative learning characteristics. These variables

are: ability, perceived ability, motivational goal orientation and personal attitudes towards co-operative learning.

4.4 Structured group exercises

The structure for the group exercises employed in this study is based on the Gibbs (1995:74-84) model and involves participants starting with their own experience and ideas and progressively opening up and widening the experience by comparison and contrast with those of the rest of the group. It requires learners to work alone, then in pairs, then in small groups of four to six and finally in a plenary session involving the whole group and chaired by a tutor.

According to Gibbs (1995:74), the advantages of structured group exercises can be listed as follows:

- How learners participate actively in group discussion can be advantageous to group dynamics.
- There will be a reduction in demand for facilitative skills or expertise in study methods.
- New ideas and ways of conceptualising learning can be introduced while still based solidly in learners' own conceptions and experiences and in particular learning context in which they are working.

Furthermore Gibbs (1995:82) structures group exercises into four stages:

- Working alone: This requires learners to take notes from a short lecture and to use these notes as a focus for discussion. Learners work out own ideas regarding the topic to be discussed before contributing to the group. The focus should be on the purpose of the learning activity in which learners have engaged.
- Working in pairs: It is less stressful for learners to discuss work in pairs than in a larger group. Safety from public ridicule when dealing with ambiguous ideas makes exploration and cautious negotiation more likely.

- Working in fours: According to Gibbs (1995:74-84), the ideal seems to be to increase the size of the groups, from pairs, sufficiently to introduce a variety of new ideas whilst maintaining individuals' contributions and keeping the exercise relatively unthreatening. The pairs offer their ideas up for discussion, now among the group of four. This is the most constructive stage of the exercise and about half the total time should be devoted to it. It is useful for the facilitation process to give the groups an orienting task to help focus discussion. It is helpful to nominate a 'chairperson' to note down the points that are agreed and to act as speaker during the final plenary.
- Plenary session: This is the 'feedback' stage. The function of feedback is to showcase the differences and similarities between the learners' range of ideas. Sharing ideas may encourage conceptualisation. The plenary session's function is to provide a goal for the earlier discussions and legitimacy of their products; to bring to the attention of the groups areas and issues which they did not themselves discuss; to give learners an opportunity to ask questions; and to facilitate the development of the learners as a group. It is useful to elaborate on learners' conclusions, to offer more coherent and articulate ways of expressing the same ideas, provided it does not seem to devalue the learners' efforts. It is also useful to question learners in order to get them to clarify their own ideas. A good way to pool the outcome of the discussions of fours is to ask each group in turn to offer one point or issue.

4.5 Structure of the exploratory study

The exploratory study was carried out with the voluntary participation of first-year graphic design learners at three campuses of the VUT, namely the Vanderbijlpark, Ekurhuleni and North-West campuses. A comparative assessment methodologies framework was utilised. The data collection procedure that followed, as summarised in Figure 4.1, was the same at all three campuses. The learners were divided into two groups and they then participated in two different teaching sessions, one involving the application of visual learning (VL) and co-operative learning (CL) strategies while the

other was modelled on the 'standard' lecture approach. They subsequently answered questionnaires about the two different teaching approaches in order to determine which approach was preferable.

The questionnaires, which consisted of mainly open-ended questions set in a matrix format, attempted to alternate statements representing different orientations and to make statements short and clear as suggested by Babbie and Mouton (2001:242) in order to limit problems inherent to the matrix and Likert scale format such as participants developing a pattern of responses. The questionnaires were in English, as that is the official language of tuition at the VUT. The questionnaires were pre-tested by a small number of senior learners enrolled in the graphic design course at the VUT before being handed out as part of the exploratory study. As part of the exploratory study and in conclusion, focus group interviews were conducted with the groups of first-year learners in order to identify any shortcomings or benefits associated with the two learning approaches relevant to the study.

The exploratory study was facilitated by the same co-ordinators at all three campuses to ensure that the experiences the learners had during the study would have been similar. Although the actual lectures were not rehearsed prior to undertaking the study, the co-ordinators met and discussed the content as well as the approach of both lectures thoroughly. The co-ordinators focused their attention on designing challenging tasks to help learners reach their goals, as well as on ensuring that learners had the skills required to succeed in these tasks. In terms of what was offered to the learners, both lectures were based on work from the History of Art and Design 1 syllabus and would form part of the same examination at the end of the semester, but could not be evaluated separately. Therefore the standard of knowledge offered to the learners was at a typical class level. The study was undertaken with the awareness of the differences within the content of the two lectures, as they were not on the same topic, but as both formed part of the syllabus of History of Art and Design 1 and were dictated by it, the results of the study need to be viewed in context of one lesson within a whole year's programme. Doubtlessly this needs to be taken under consideration when reviewing the results of the study, but it was not

seen as a major factor because there was no evidence in the data collected/responses of the learners that these issues had had an impact.

The structure of the exploratory study can be demonstrated by a flow chart providing an overview of the procedure followed (Figure 4.1). The same procedures were followed and principles were applied at each of the three campuses of the Vaal University of Technology.

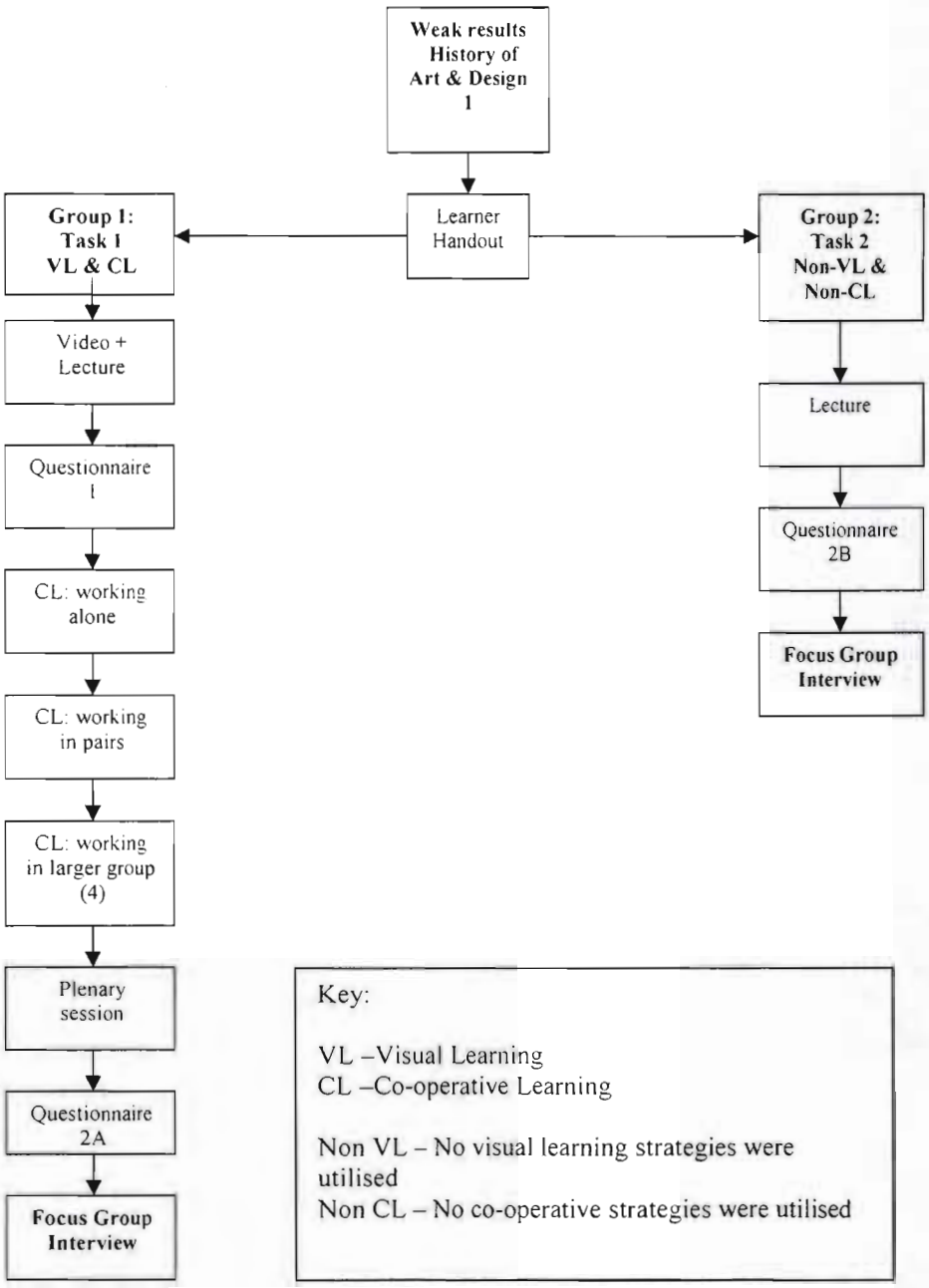


Figure 4.1: Exploratory study procedure

The theoretical framework, learning purpose and case selection in the three case studies for the exploratory study at Vanderbijlpark, Ekurhuleni and North-West campus, the Vaal University of Technology, using graphic design learners enrolled for History of Art and Design 1 as participants, can be summarised as follows (Table 4.1):

Table 4.1: Project Structure

Study	**Theoretical Framework**	**Study Purpose**	**Case Selection Criteria**
Visual learning and graphic design – a co-operative strategy	Do visual learning and co-operative learning strategies used in combination with one another have an effective impact on learning output in graphic design at the VUT?	To examine the effects of implementing a combination of co-operative and visual learning strategies in the subject History of Art and Design 1 at the Vaal University of Technology	• Established curriculum (in existence at least 3 years) • Diverse institutional teaching practice (three campuses teaching the same subject) • Gender/ethnicity neutral content

A simple three-step approach was used within this structured group approach:

- Collect visual information.
- Discuss.
- Draw conclusions.

Participatory Research:

Selection of Cases: Non-probability selection principles

Mode of Observation:	Participant observation, semi-structured interviewing and the use of documents
Analysis:	Qualitative forms of data analysis A collaborative effort between researcher and participants
Foreseen Limitations:	Small number of cases and low degree of control may affect generalisation.

Peterson and Miller (2004:181) established that learners experience the most positive involvements when they are engaged in co-operative learning tasks for which they have the appropriate skill and which they perceive as important in achieving their goals. Rather than being overly concerned about differences in learners' beliefs regarding co-operative learning, facilitators should focus their attention on designing reasonably challenging tasks that help learners reach their goals, and on ensuring that learners have the necessary skills for succeeding in these tasks. This significant statement was considered when designing the learners' handout to be utilised for this study.

4.6 Learners' handout

The learners were given a series of questionnaires (see Annexure A) which they were required to complete once they had attended a lecture. Questionnaire 1 was intended to determine their perceptions of and attitude towards separate aspects of visual learning and co-operative learning. This was followed by an explanation of the approach to be utilised in the exploratory study whilst answering Task 1 as well as the pre-determined task which the learners are required to complete whilst utilising a combination of co-operative visual learning techniques. Following the completion of the task, Questionnaire 2A determined the learners' responses and attitudes to the task.

The learners were required to answer the question in Task 2 immediately after attending a lecture where limited visual learning and no co-operative learning strategies were utilised. Questionnaire 2B determined the learners' responses and attitudes towards the task. Once the learners had completed the allocated tasks and answered the

questionnaires they participated in a series of focus group interviews regarding their experiences.

4.7 Focus group interviews

Based on a total group of 43 learners who participated in the exploratory study in 2004, a small number of learners from each group were asked to participate in focus group interviews. The interviews were conducted with 5-6 randomly selected learners regarding attitudes to visual learning and co-operative learning as experienced during the exploratory study (Vanderbijlpark campus – 6 learners, Ekurhuleni campus – 5 learners, North-West campus – 5 learners). The learners were from varied cultures and socio-economic backgrounds. The home language distribution was as follows:

- Vanderbijlpark campus – Afrikaans 50%, English 16.6%, Sotho 33.3%, Zulu 16.6%
- Ekurhuleni campus – Afrikaans 30%, Sotho 40%, Xhosa 20%, Other 10%
- North-West campus – Afrikaans 20%, Sotho 60%, English 10% and Other 10%.

The majority of the learners at Vanderbijlpark were female, whereas at Ekurhuleni and North-West campus the majority of the learners who participated were male.

The number of learners who were asked to participate in the focus group interviews were kept purposefully low so as not to disadvantage the learners from the satellite campuses who traditionally have smaller learner numbers than at the Vanderbijlpark campus. The learners were led in a discussion regarding their responses to the two learning approaches (a transcript of the interviews is included in Annexure E). Although the interviews were conducted on different days the learners were unfamiliar with the content of discussion at the other campuses and could not have influenced each other.

Learners indicated how they perceived the video content of the increased visual learning lecture:

- "I did not understand what the presenter in the video was talking about."
- "I think the video was better because sometimes you have something on your mind and you can't actually explain it ... until the next person comes along and goes its like that and like that ... so it's better ..."
- "I did not enjoy the content of the video."

Learner response to the collaborative work:

- "I end up doing all the work for my group."
- "Group work is distracting ..."
- "Some learners are lazy and don't want to take part."
- "Small groups as you get to cover things that you overlooked but you still work within the group."

Consequently, all 43 learners were asked to answer questionnaires based on two learning approaches: group work, which included increased levels of visual information in the form of a lecture-relevant video, and a 'standard' lecturer-speaks-in-front-of-class lecture approach limited to basic visual information available in the text book. During the second approach learners were encouraged to work on their own. The learners were assigned heterogeneous groups based on their class enrolment. Both lectures were based on work to which they already had had an introduction in class, thus the work discussed in the lectures was not altogether unfamiliar.

The first approach focused on a short video lecture that introduced the learners to the given topic whilst also providing them with a large amount of background information. A questionnaire determining their experiences was answered immediately afterwards. The second, comparative approach was a lecturer-based instruction where the learners were given a lecture, followed by a short question and answer session with the lecturer, followed by the questionnaire.

There were two main differences between the two approaches. The first approach provided the learners with a large quantity of visual information (the video) and the learners were expected to answer questions based on the lecture in a group. The lecturer then took on an observational and guidance position and helped steer the group in their discussion. Learners were given limited time (10-30 minutes) to discuss the work as within the group structure. This was followed by a 5-10 minutes' plenary session in which all learners participated.

In order to re-create a typical 'standard' lecture, the second approach was more restrictive in the amount of visual information and the amount of collaboration the learners were required to do. The learners took notes during the lecture and were encouraged to find the corresponding visuals in their text books. They had an opportunity to discuss the lecture with the lecturer and then had to work on their own to answer questions based on the content of the lecture. Immediately following each lecture session, learners responded to a questionnaire measuring learning and performance, attitudes towards group and individual learning tasks, as well as attitudes towards an increased amount of visual information in the form of the video lecture.

4.8 Variables and data reduction used in analyses

Learners' attitudes, responsiveness and perception of visual learning and co-operative learning approaches are the variables under discussion. According to Babbie and Mouton (2001:154) the use of a Likert-type scale is useful when a researcher needs to analyse participant response with minimal unambiguity. Likert-type scales are also useful when determining the intensity of a participant's response. Due to the ambiguous nature of the question of this research (to determine learners' responsiveness and attitudes to a combination of visual learning and co-operative learning) a Likert-type scale was chosen as the most appropriate research design approach when designing the questionnaires for the exploratory study.

At any one time between 2002 and 2005, no more than 50 learners were enrolled for the subject History of Art and Design 1 at any of the three campuses of the VUT, therefore the study sample during the control as well as during the exploratory study was always relatively small. As the sample size was limited, manual data analysis was carried out.

The exploratory study was implemented in 2004 with a total of 43 learners, all of whom were enrolled for the subject History of Art and Design 1. Learners were not asked to state their age and gender for the study, as this would be irrelevant. They were asked to indicate at which campus they were attending class, as this would help trace and later analyse the class average for the subject.

Learners used a 5-point Likert-type scale (1 – strongly disagree, 2 – disagree, 3 – undecided, 4 – agree, 5 – strongly agree) to indicate how true each item was of them. Learners were asked to respond to questions to measure their attitudes towards group work, responsiveness to visual information and their perception of how important this would be in their future careers as graphic designers.

4.9 Summary

The empirical component of this study was introduced in this chapter. The need for the study as well as the perceived reasons for the low examination results for the subjects History of Art and Design at the Vaal University of Technology were defined. The implementation of the exploratory study was further discussed and explained. The appropriateness of the utilisation of co-operative and visual learning methods was contemplated. Visual learning methods used in combination with co-operative learning strategies were introduced in the exploratory study and may have attempted to improve the low examination results experienced previously.

The study was carried out with the participation of first-year graphic design learners at the Vaal University of Technology in 2002, 2003 and 2004. In 2002 and 2003 the curriculum and teaching approach remained unchanged from previous years and was

regarded as a control. The following year, 2004, saw an increase in the inclusion of visual material as well as group work in the curriculum, and the implementation of the exploratory study in the fourth quarter of the year. This culminated in 2005 when, independently of the results of the exploratory study, a new, parallel, improved generic module for the first-year theory subject was introduced, which further increased learner participation and access to visual materials.

Following the introduction of increased levels of co-operative learning and visual learning into the History of Art and Design curriculum in 2004, an exploratory study was devised in order to determine learners' attitudes towards co-operative learning (CL) and visual learning (VL), and specifically the use of a combination of these two approaches. The exploratory study for this research included the participation of a group of first-year graphic design learners from three different campuses of the Vaal University of Technology. The implementation of the exploratory study was followed by focus group interviews with the learners in order to determine their responses to the research.

5.2 Results of the implementation of the exploratory study

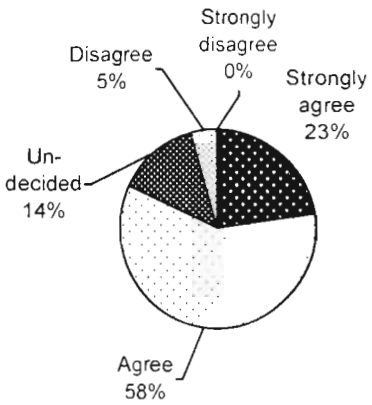
The numerical pie-graph summary of responses obtained from Questionnaire 1, Questionnaire 2A and Questionnaire 2B follows. A summary of the responses in table format is included at the end of the chapter.

In order to facilitate a comparison between the three campuses of the Vaal University of Technology, four pie-graphs have been placed per page – one for each of the campuses of the VUT and one combining an average score for all campuses.

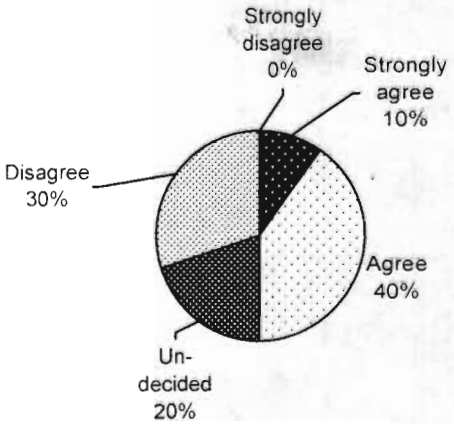
5.2.1 Questionnaire 1 – To determine learners' general attitudes towards visual and co-operative learning.

Question 1
In my class we regularly use visual information

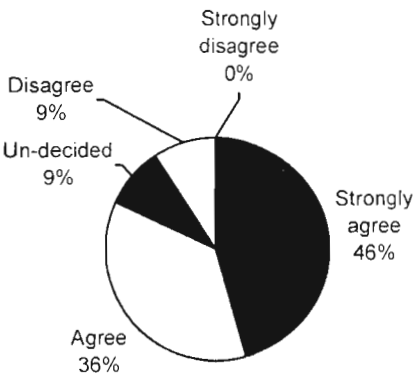
Vanderbijlpark campus:



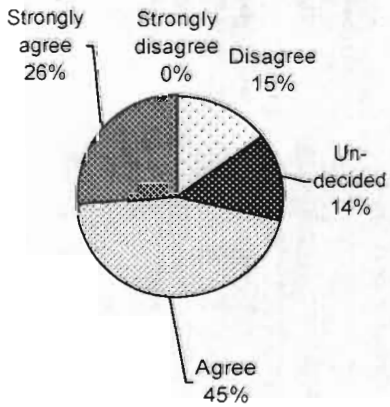
Ekurhuleni campus:



North-West campus:

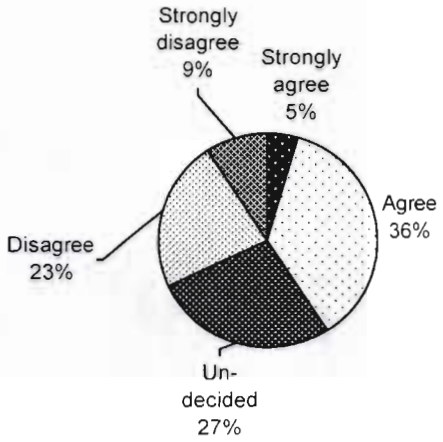


All campuses:

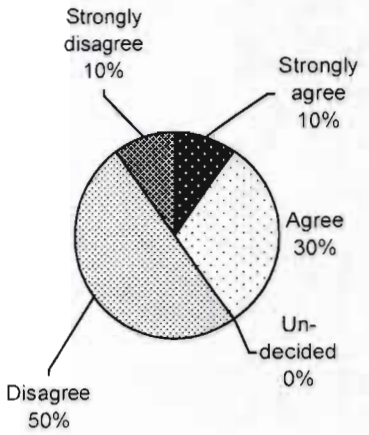


Question 2
In my class this year we have regularly used visual information in assignments.

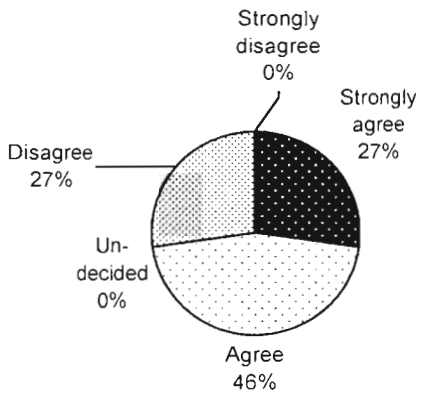
Vanderbijlpark campus:



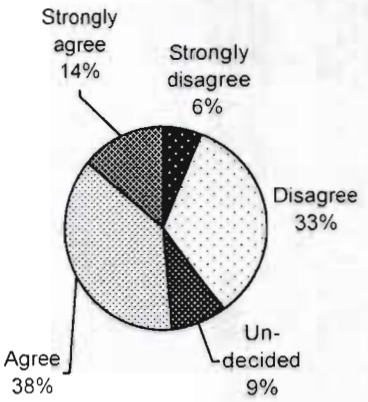
Ekurhuleni campus:



North-West campus:

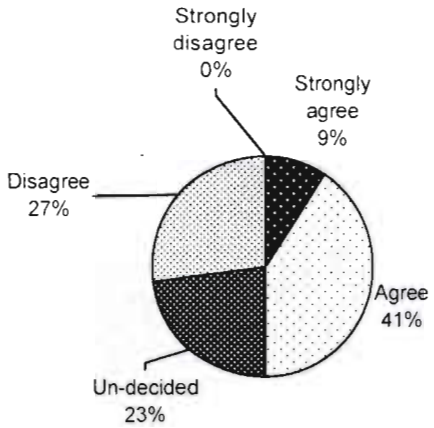


All campuses:

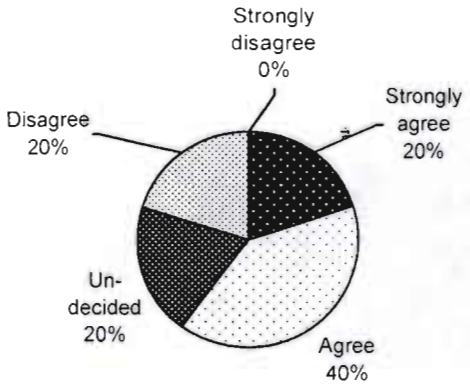


Question 3
I regularly employ visualisation techniques such as mind maps when I study.

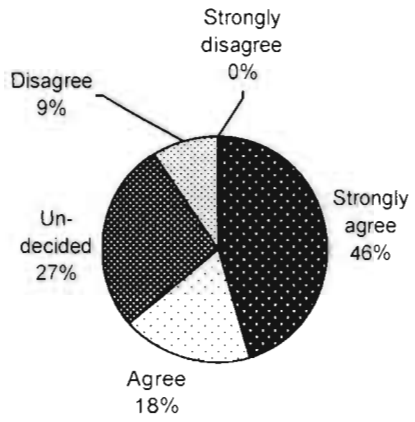
Vanderbijlpark campus:



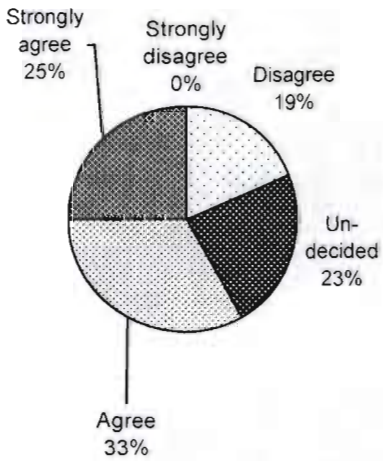
Ekurhuleni campus:



North-West campus:

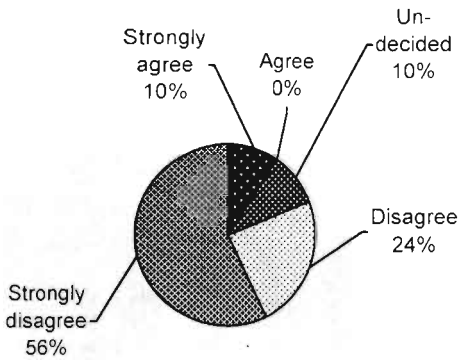


All campuses:

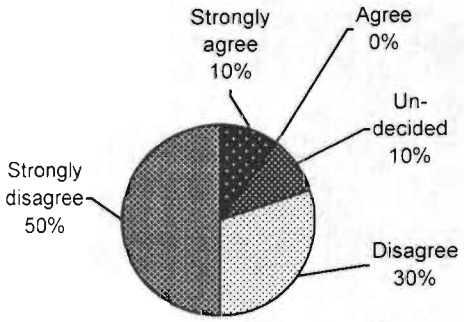


Question 4
In my class this year we have regularly watched films.

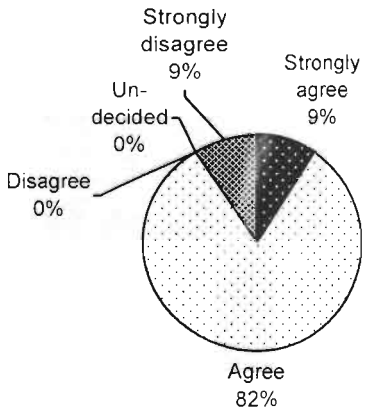
Vanderbijlpark campus:



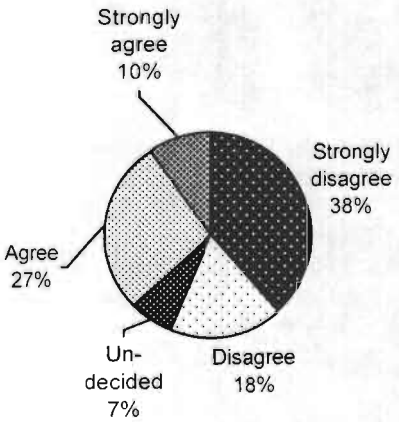
Ekurhuleni campus:



North-West campus:



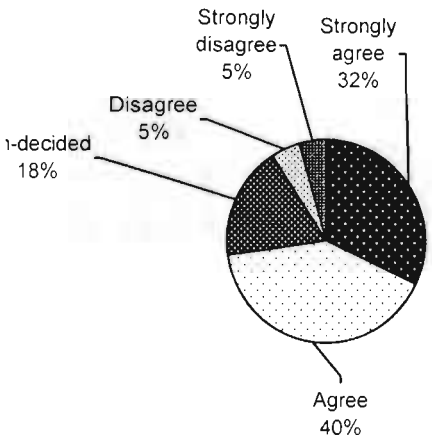
All campuses:



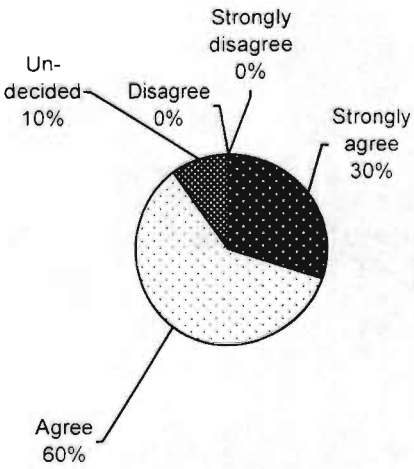
Question 5

I enjoy working on assignments with large amounts of visual content.

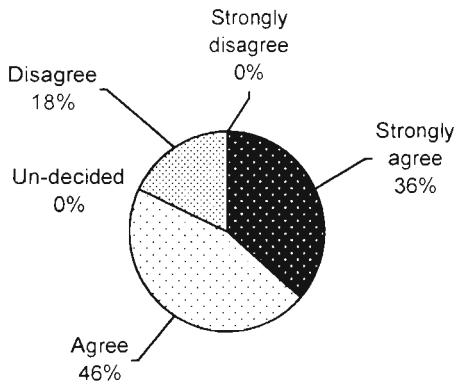
Vanderbijlpark campus:



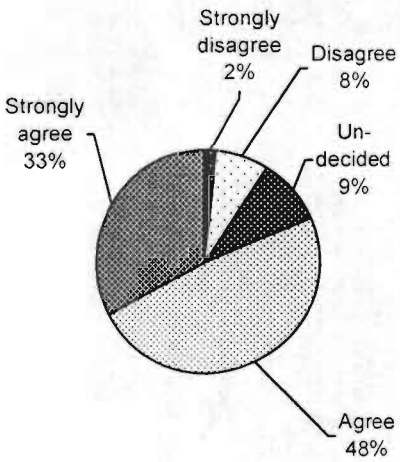
Ekurhuleni campus:



North-West campus:



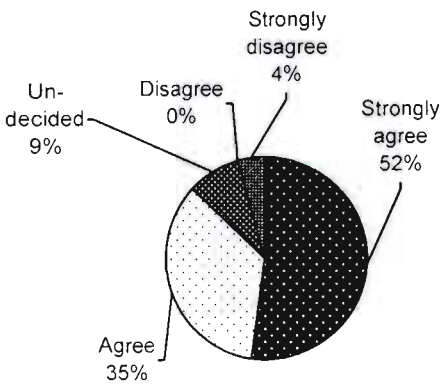
All campuses:



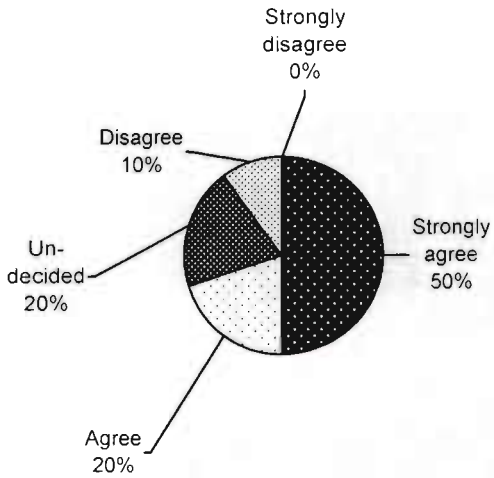
Question 6

I prefer watching a film regarding a topic we have covered in class as it helps me remember more during the exam.

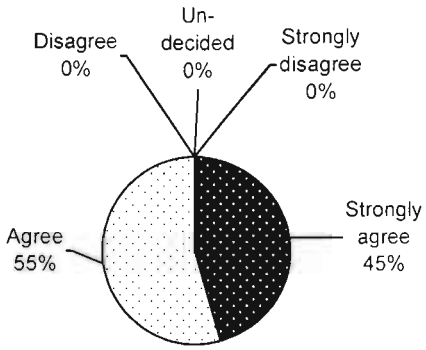
Vanderbijlpark campus:



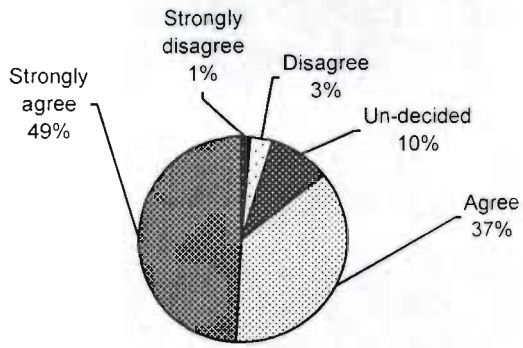
Ekurhuleni campus:



North-West campus:



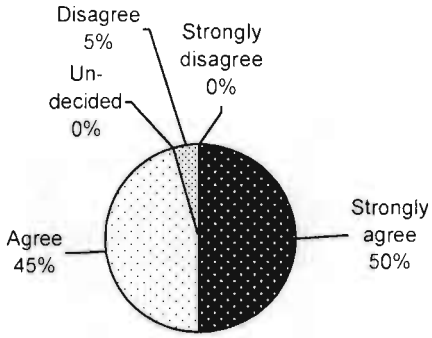
All campuses:



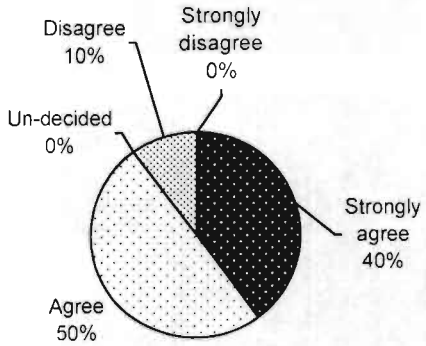
Question 7

Study material with visual illustrations in the text is more exciting than text on its own.

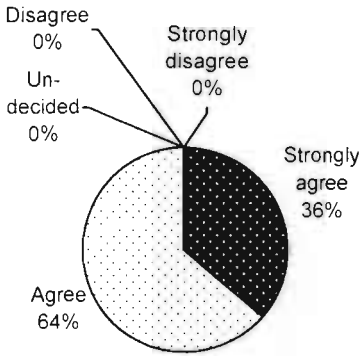
Vanderbijlpark campus:



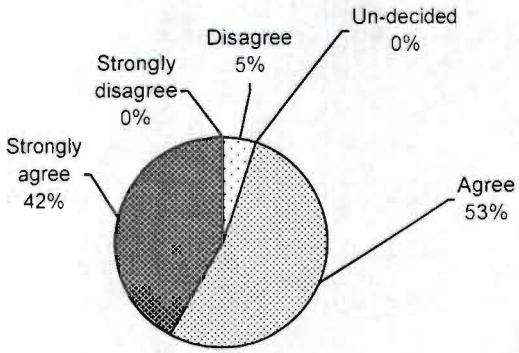
Ekurhuleni campus:



North-West campus:

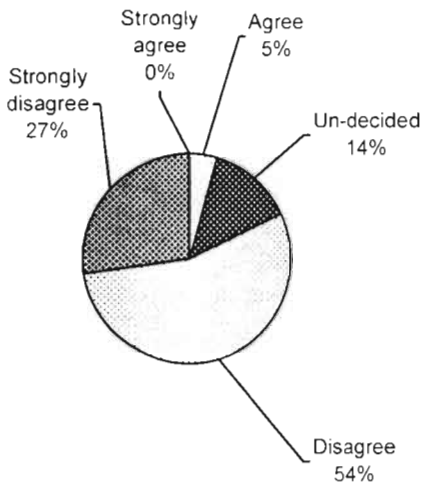


All campuses:

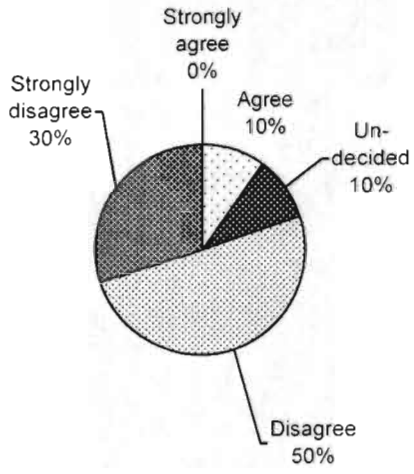


Question 8
I find the visual images in study material distracting.

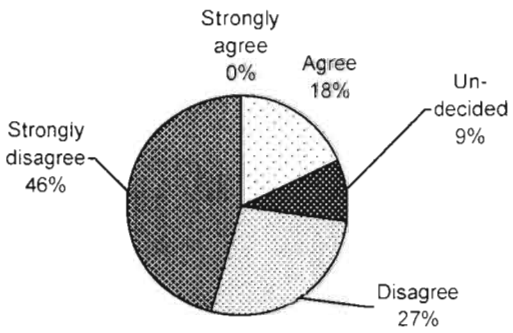
Vanderbijlpark campus:



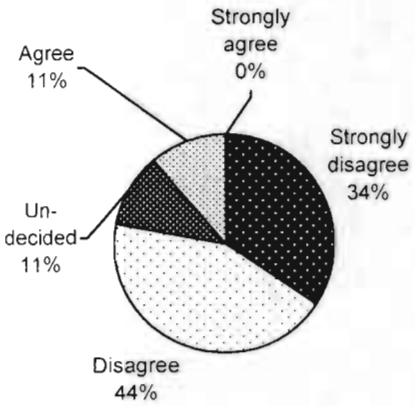
Ekurhuleni campus:



North-West campus:

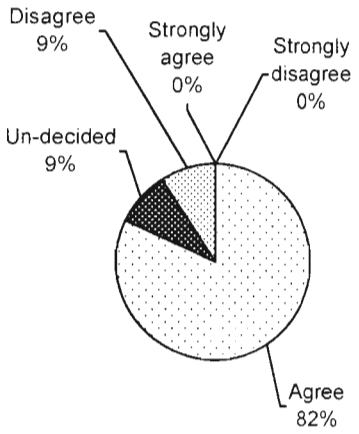


All campuses:

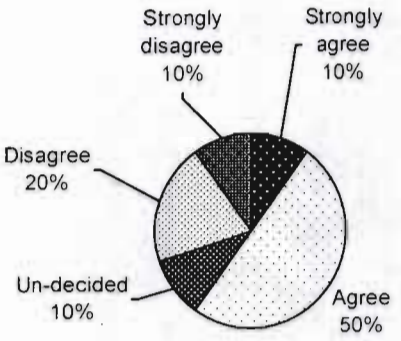


Question 9
In my class this year we have regularly done group work in class.

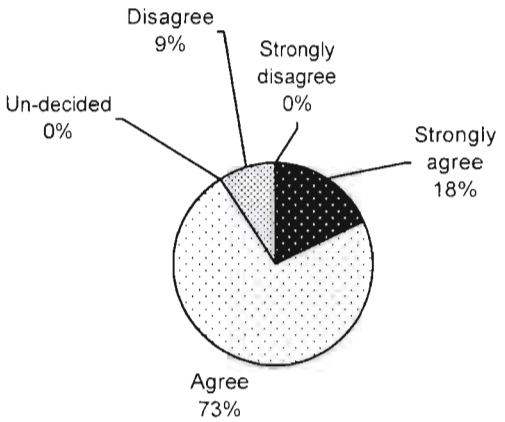
Vanderbijlpark campus:



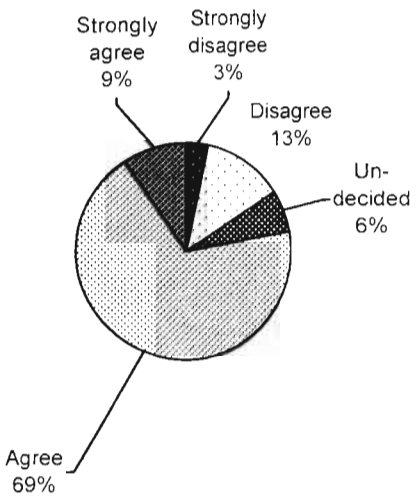
Ekurhuleni campus:



North-West campus:

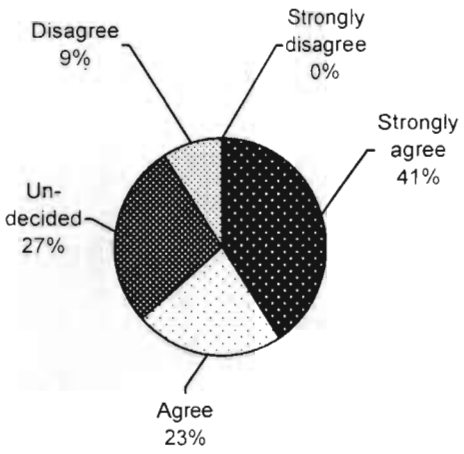


All campuses:

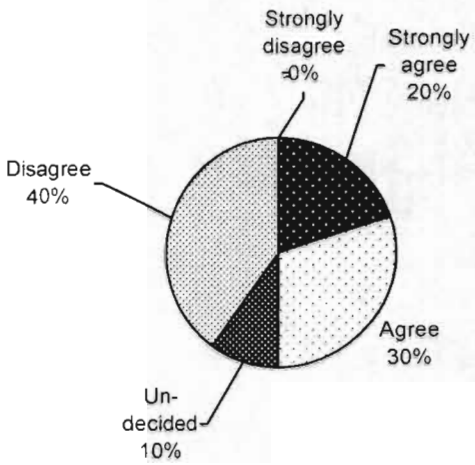


Question 10
When I work by myself (instead of with a partner or small group) I usually do better.

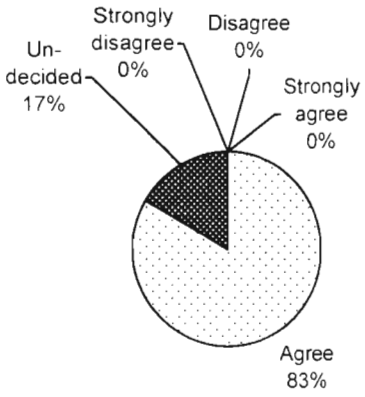
Vanderbijlpark campus:



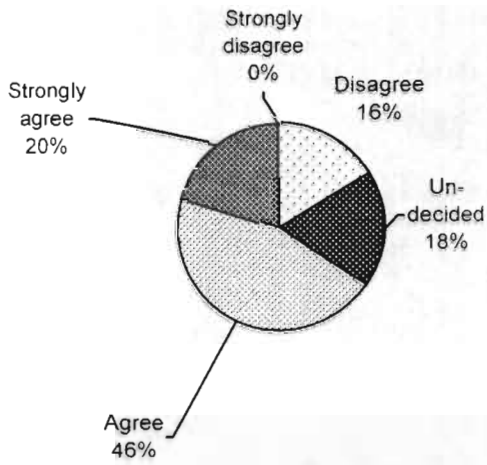
Ekurhuleni campus:



North-West campus:

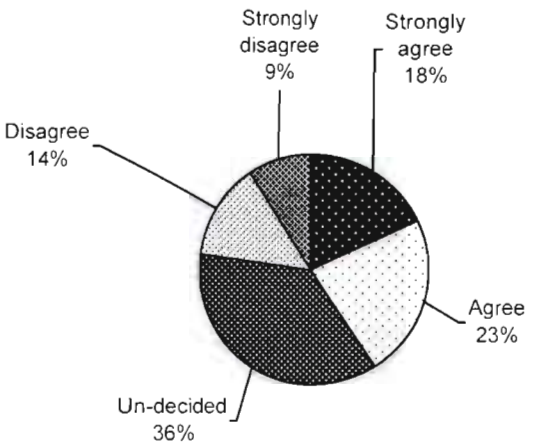


All campuses:

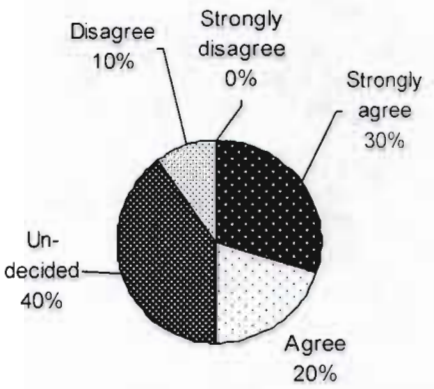


Question 11
Usually, I find working with a partner to be more interesting than working alone in class.

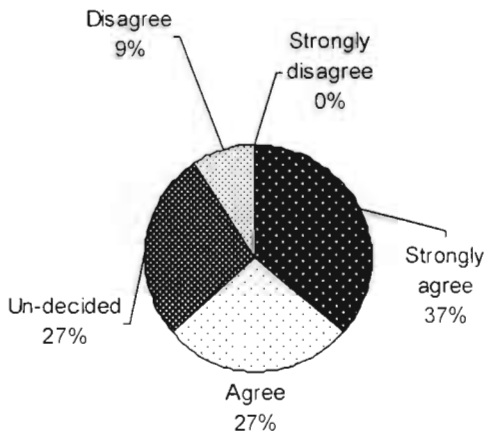
Vanderbijlpark campus:



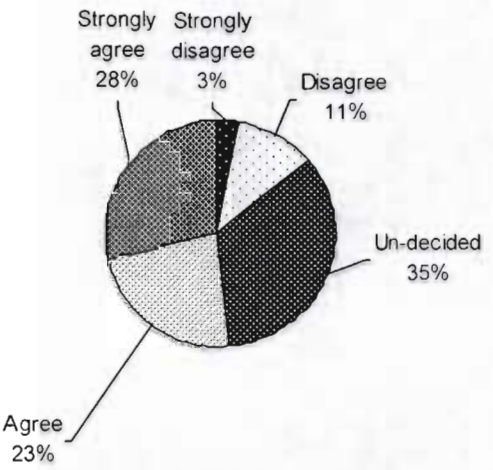
Ekurhuleni campus:



North-West campus:

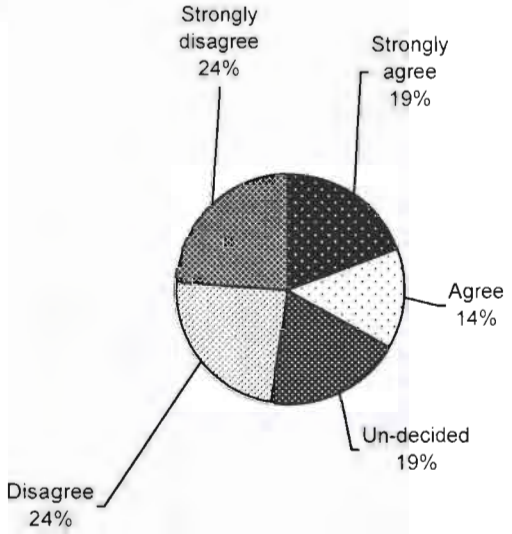


All campuses:

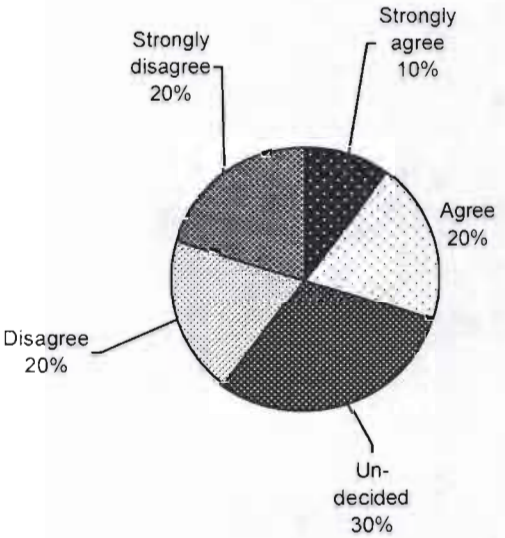


Question 12
Usually, I prefer that the instructor select the partner or group of classmates with whom I will be working.

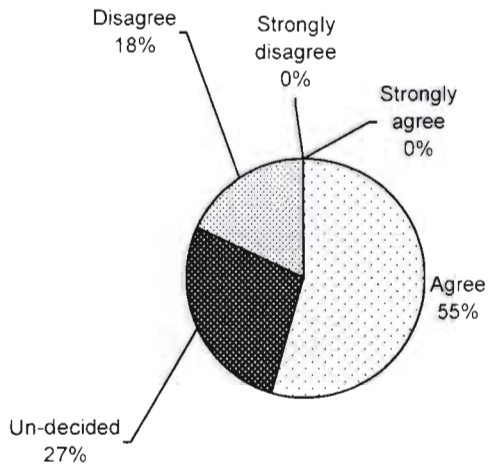
Vanderbijlpark campus:



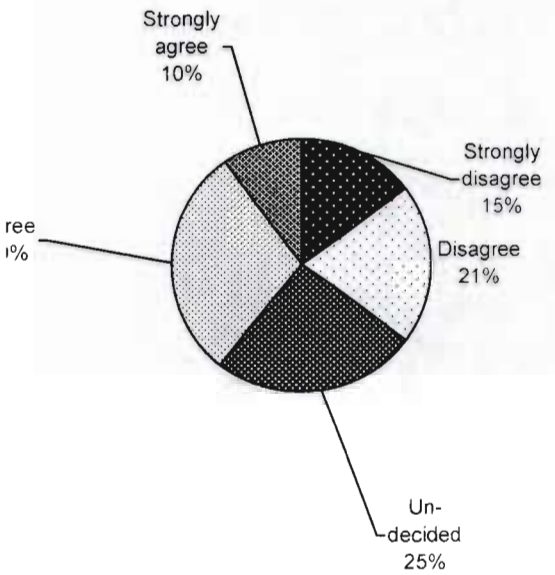
Ekurhuleni campus:



North-West campus:

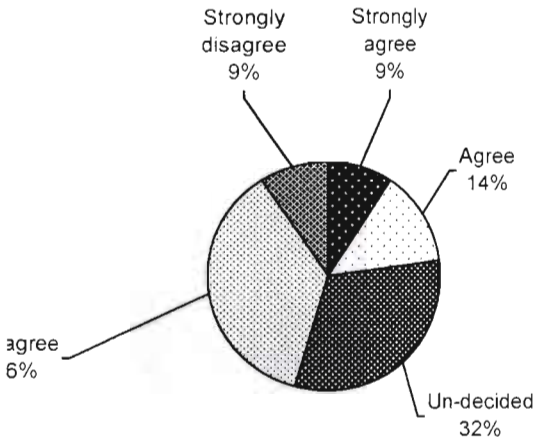


All campuses:

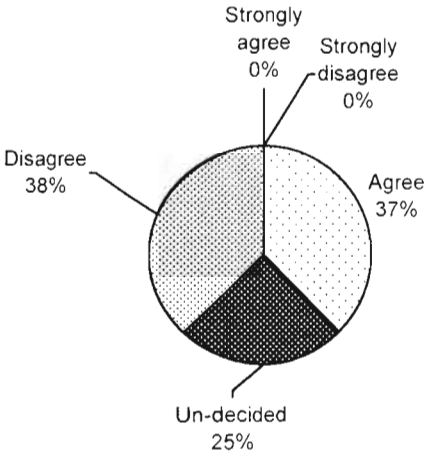


Question 13
I prefer working with classmates from the same background as me.

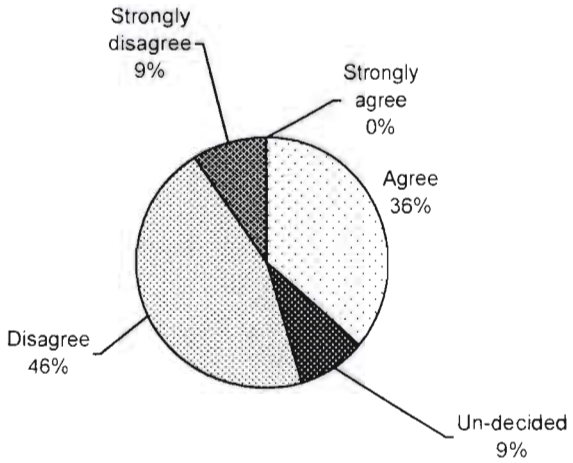
Vanderbijlpark campus:



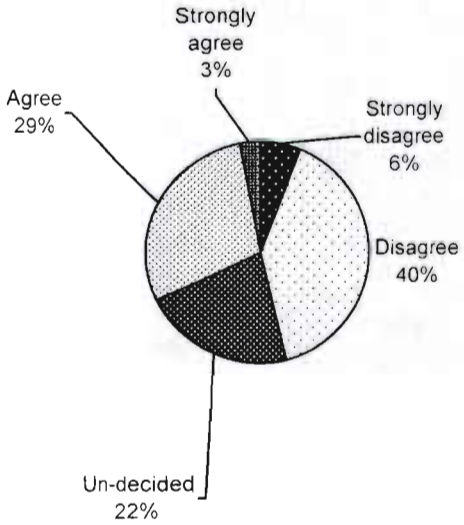
Ekurhuleni campus:



North-West campus:



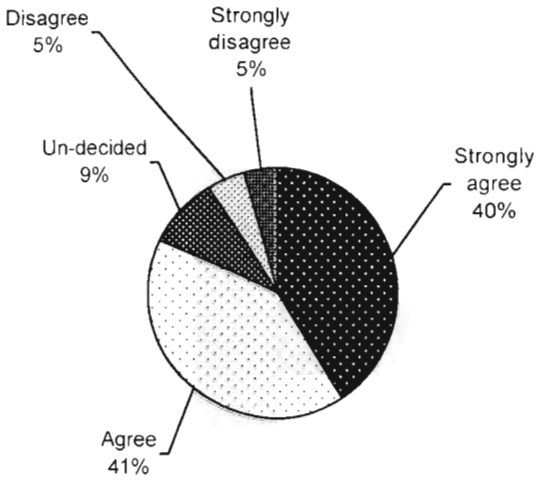
All campuses:



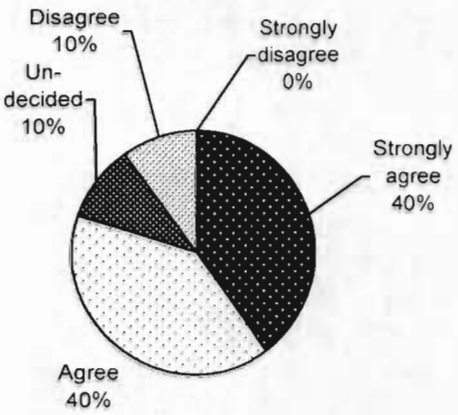
Question 14

When I work in a small group I usually learn more and do better than in a large group.

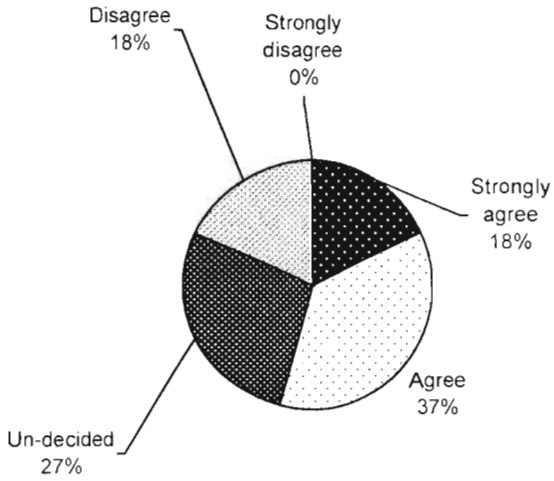
Vanderbijlpark campus:



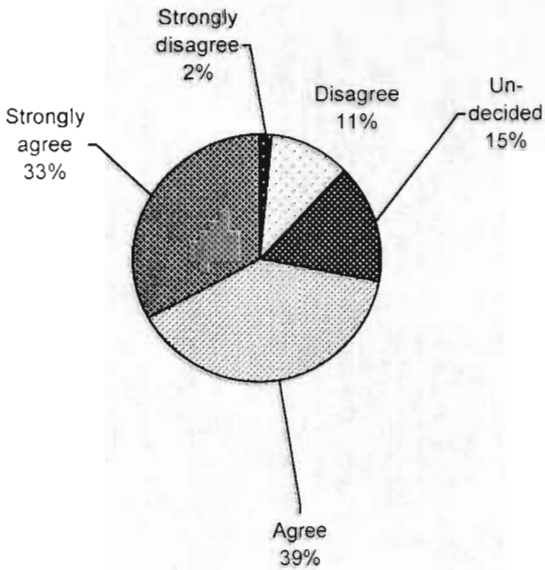
Ekurhuleni campus:



North-West campus:

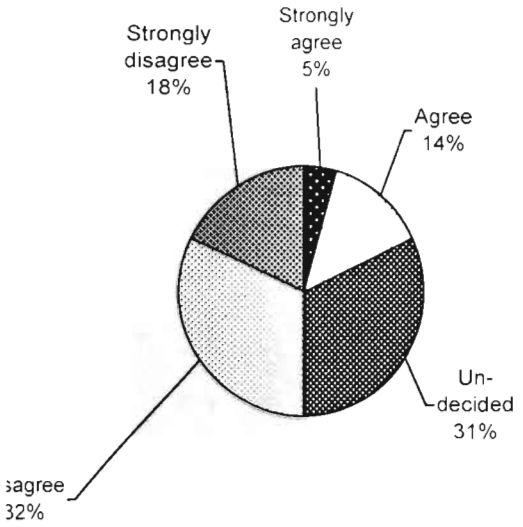


All campuses:

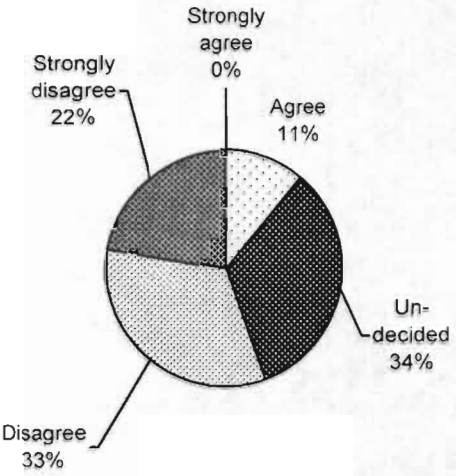


Question 15
Usually, I find working with a group to be a waste of time.

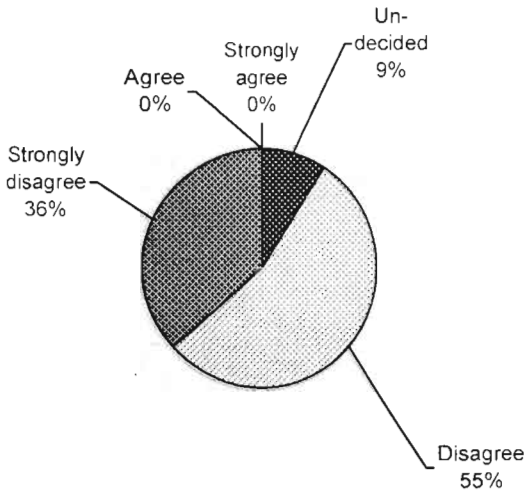
Vanderbijlpark campus:



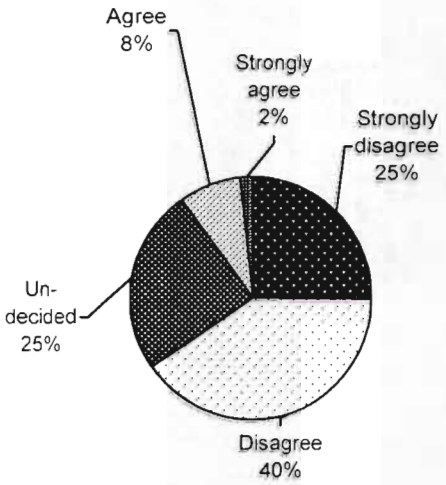
Ekurhuleni campus:



North-West campus:



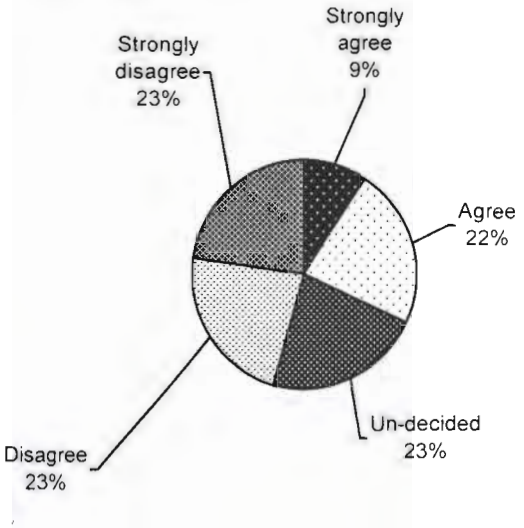
All campuses:



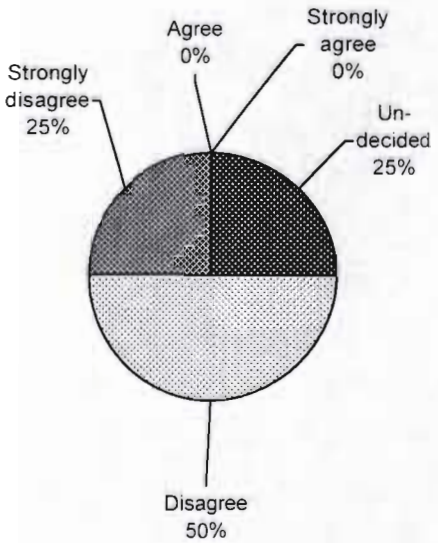
Question 16

I prefer to study "parrot fashion" rather than use mind maps or visualisation techniques.

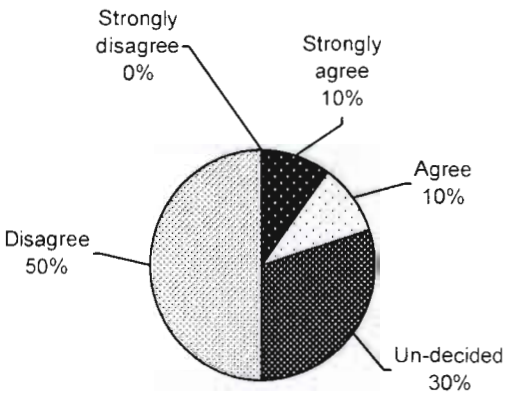
VanderbijIpark campus:



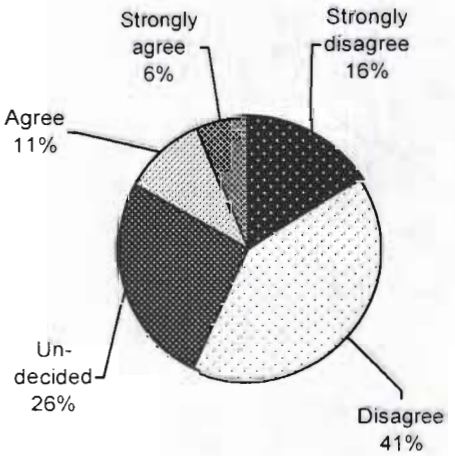
Ekurhuleni campus:



North-West campus:

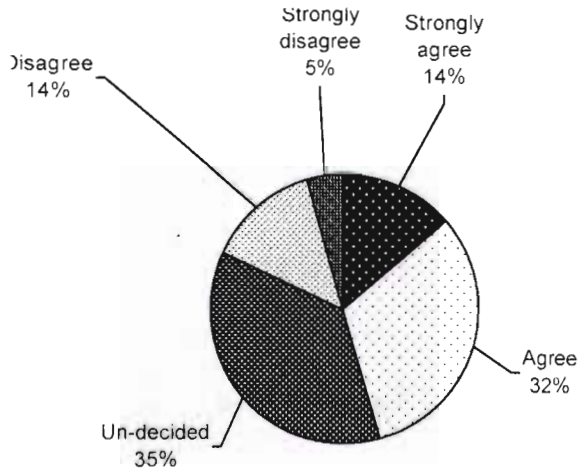


All campuses:

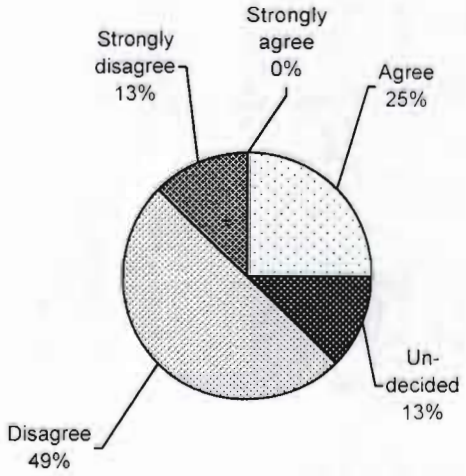


Question 17
I remember more when I work by myself rather than with a group.

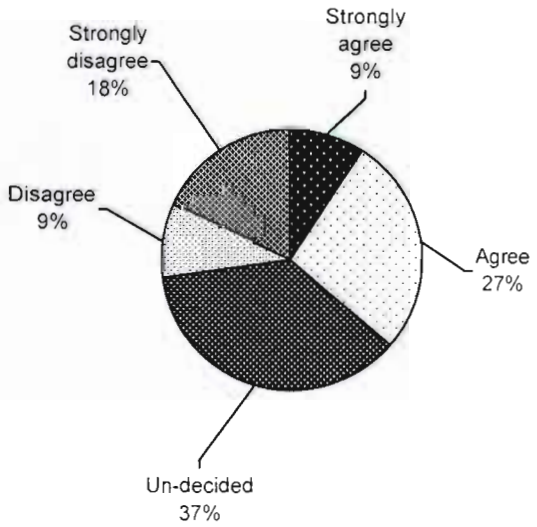
Vanderbijlpark campus:



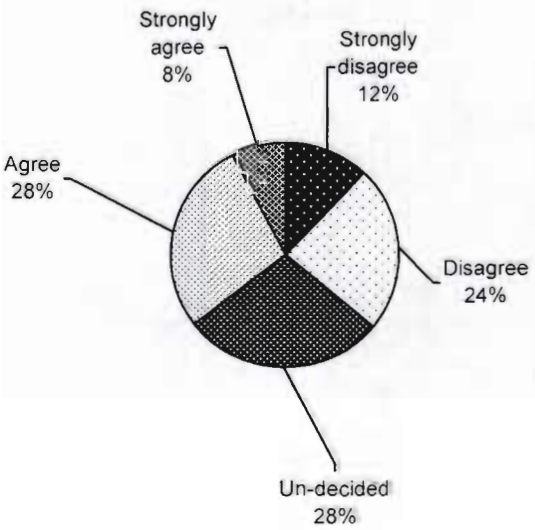
Ekurhuleni campus:



North-West campus:



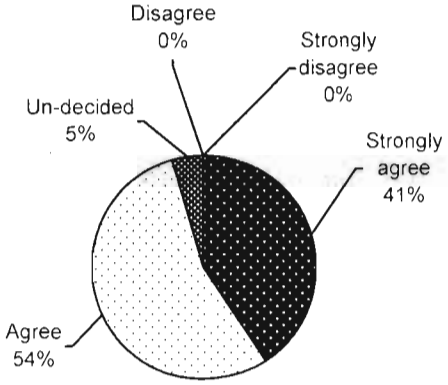
All campuses:



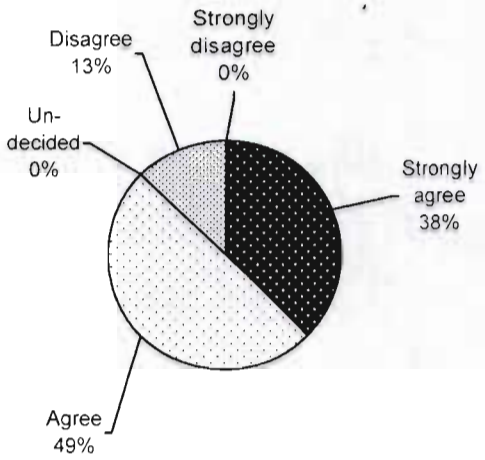
Question 18

Doing group work is good preparation for working in the graphic design industry.

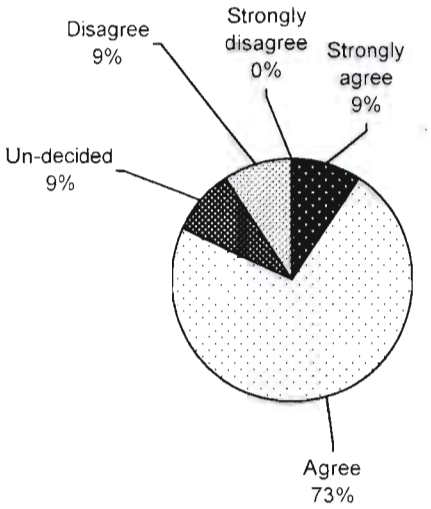
Vanderbijlpark campus:



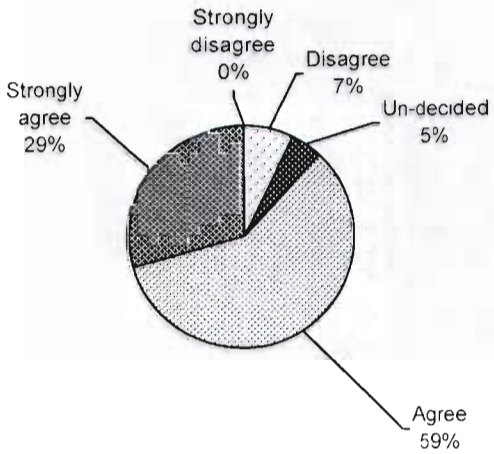
Ekurhuleni campus:



North-West campus:



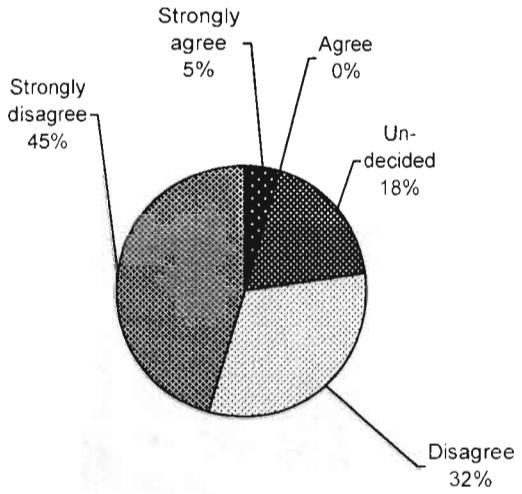
All campuses:



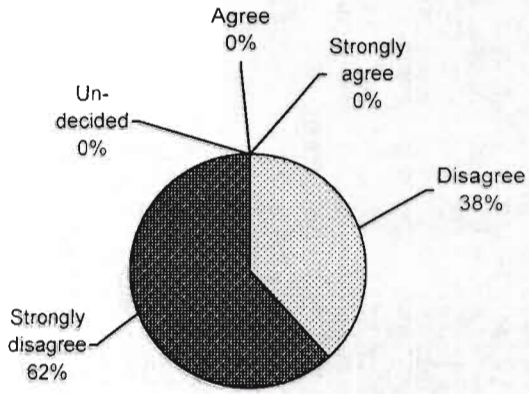
Question 19

I do not enjoy watching videos based on content we have to cover in class.

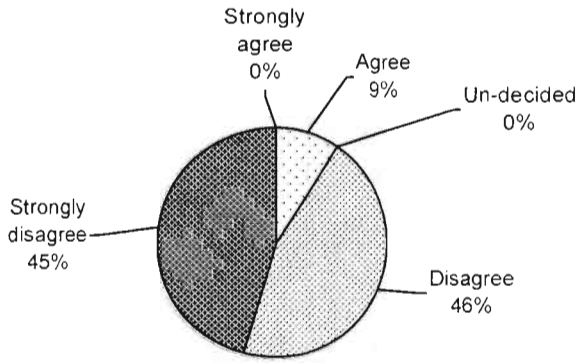
Vanderbijlpark campus:



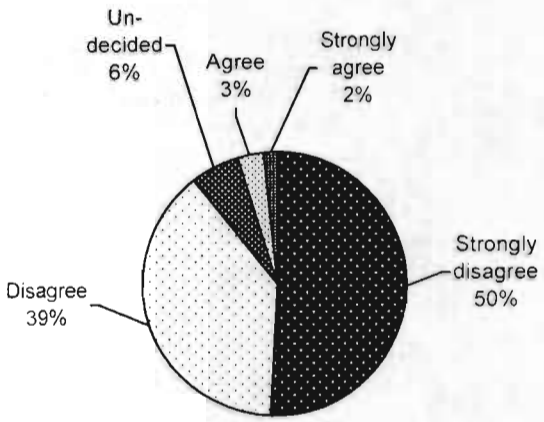
Ekurhuleni campus:



North-West campus:

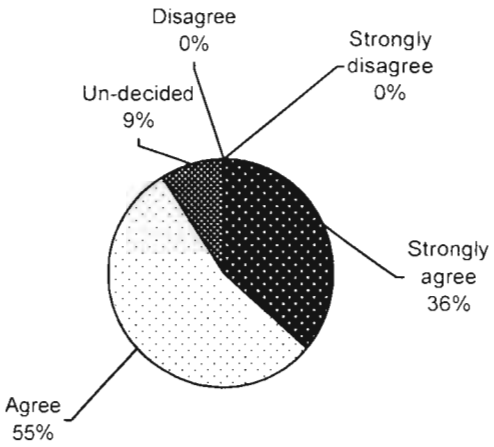


All campuses:

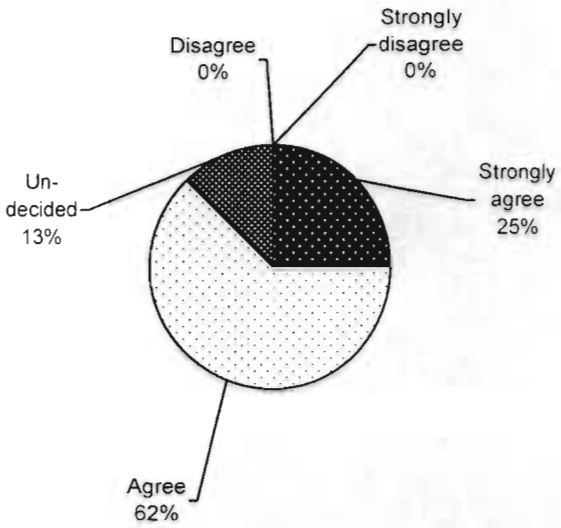


Question 20
Visual illustrations help me remember more during the exam.

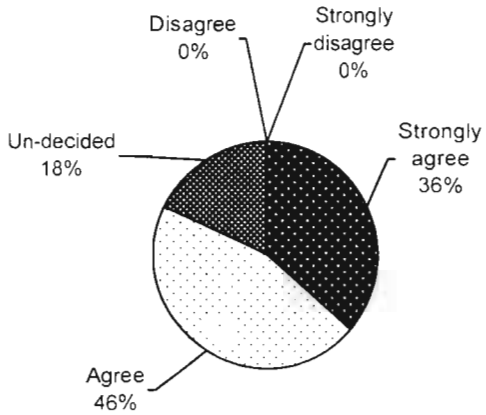
Vanderbijlpark campus:



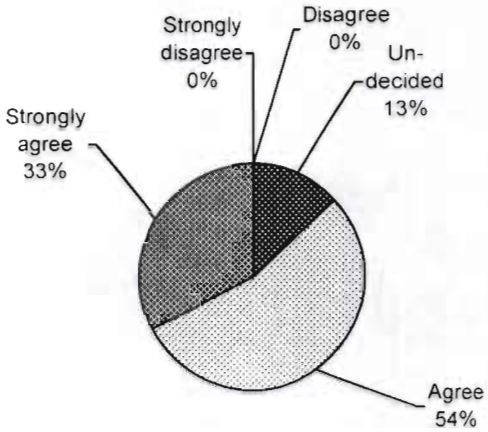
Ekurhuleni campus:



North-West campus:



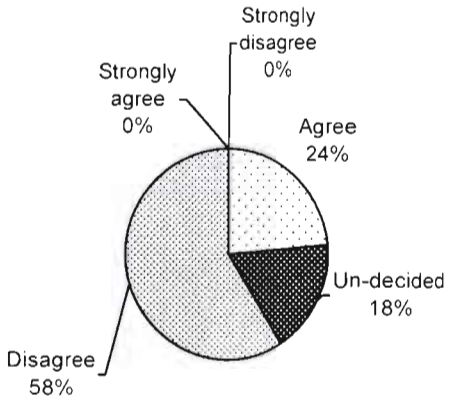
All campuses:



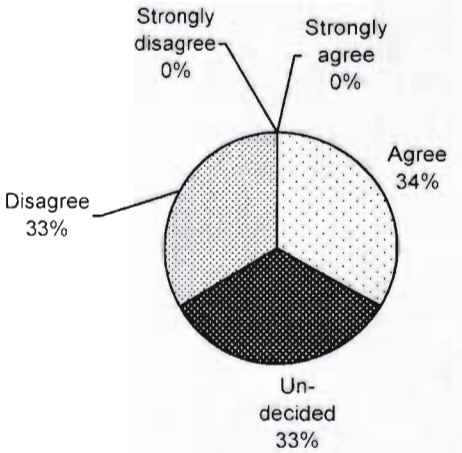
5.2.2 Questionnaire 2A - To determine learners' attitudes towards visual and co-operative learning after watching the video and working in a group

Question 1
I was able to complete the brief without difficulty.

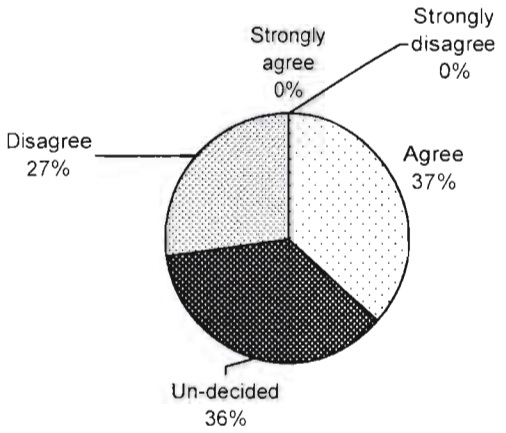
Vanderbijlpark campus:



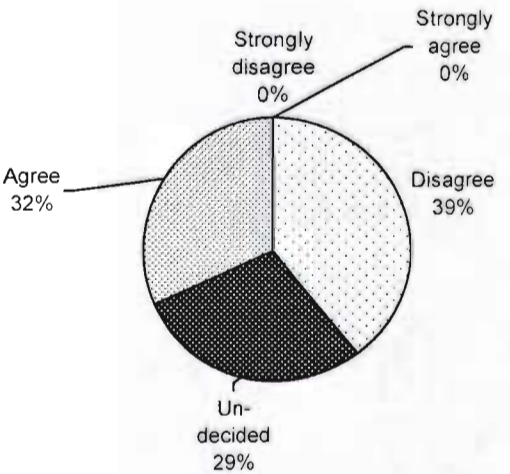
Ekurhuleni campus:



North-West campus:

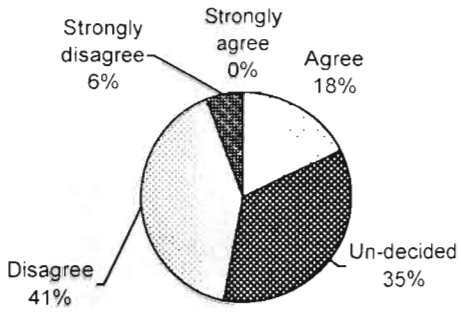


All campuses:

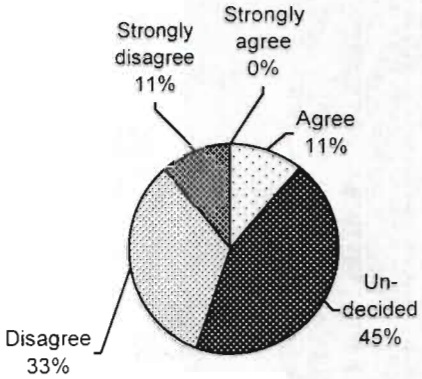


Question 2
I had enough information to complete the brief.

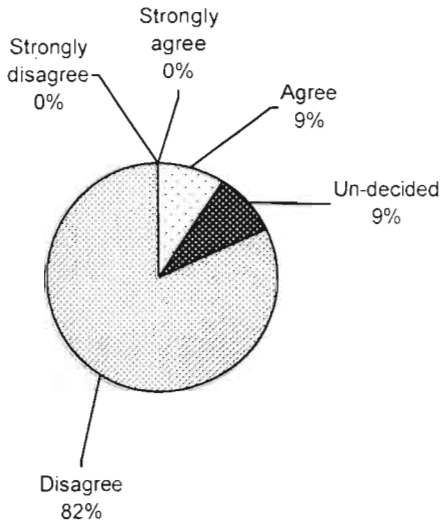
Vanderbijlpark campus:



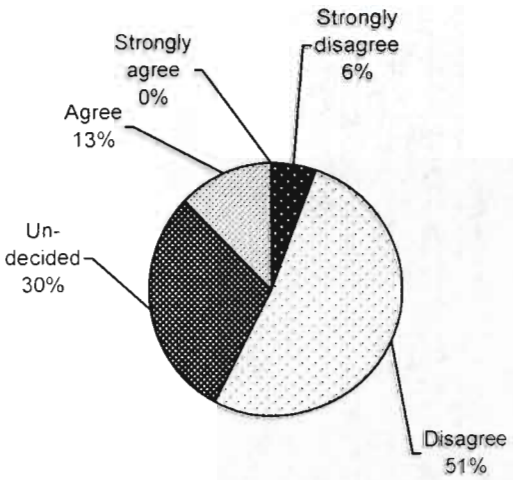
Ekurhuleni campus:



North-West campus:

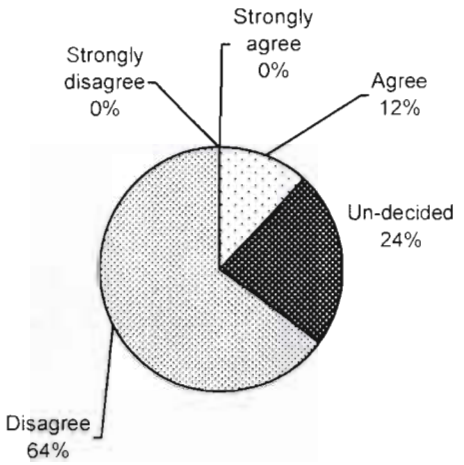


All campuses:

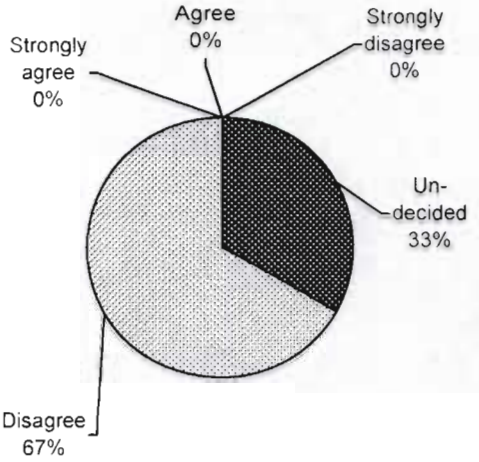


Question 3
I found the information supplied confusing.

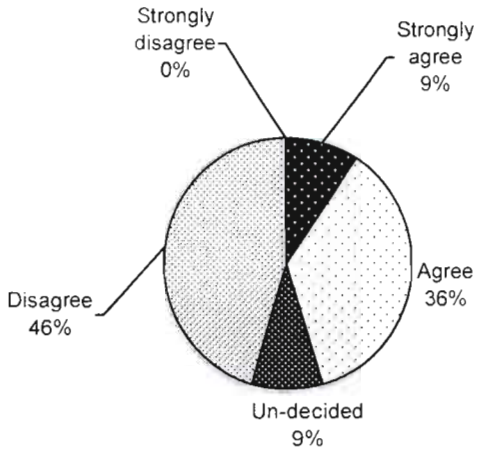
Vanderbijlpark campus:



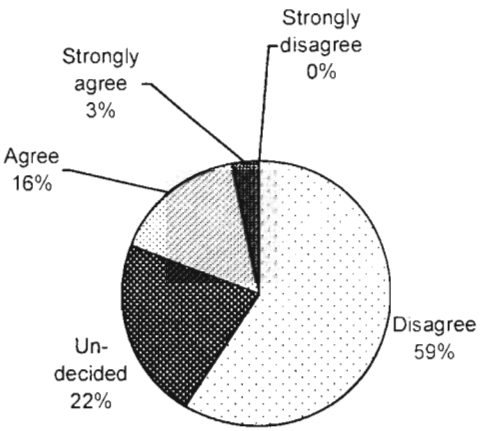
Ekurhuleni campus:



North-West campus:

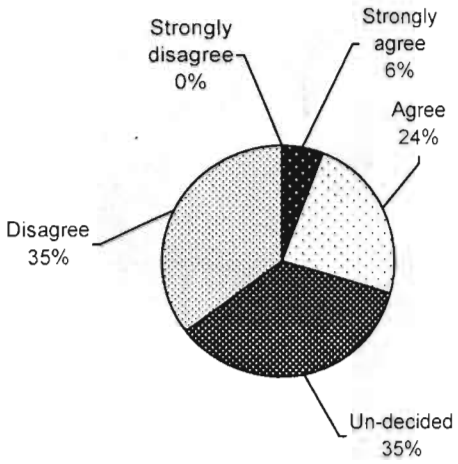


All campuses:

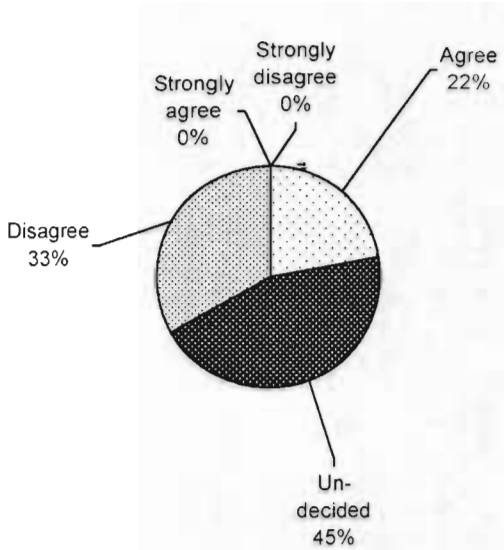


Question 4
The lecture session was boring.

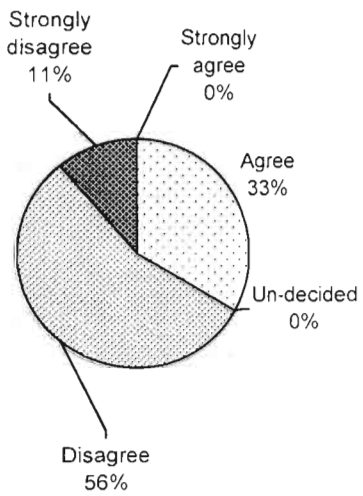
Vanderbijlpark campus:



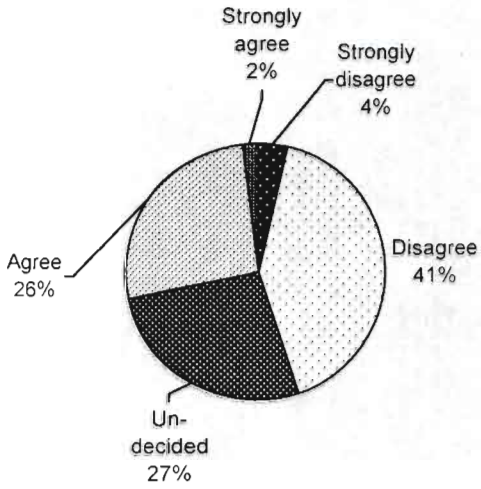
Ekurhuleni campus:



North-West campus:

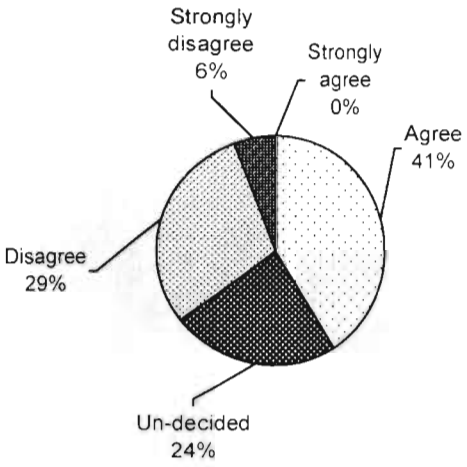


All campuses:

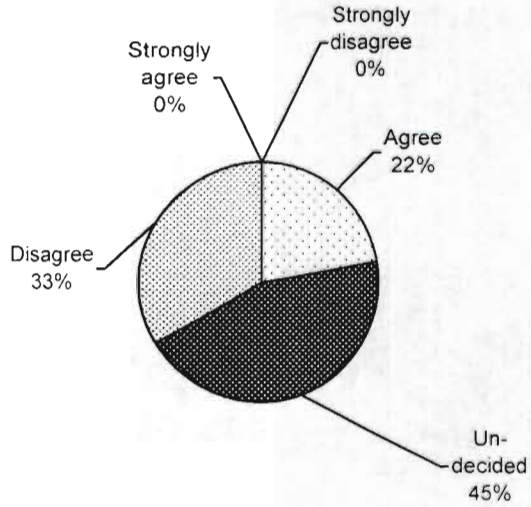


Question 5
I could concentrate easily for the whole duration of the lecture.

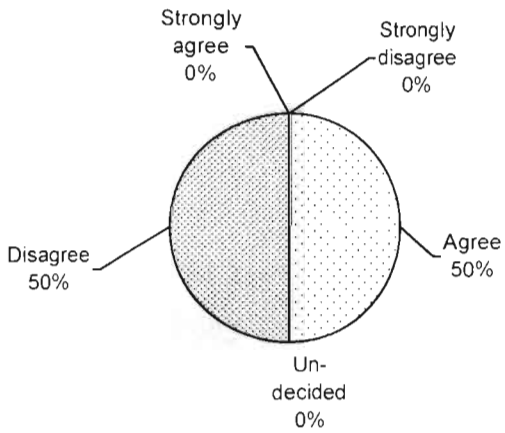
Vanderbijlpark campus:



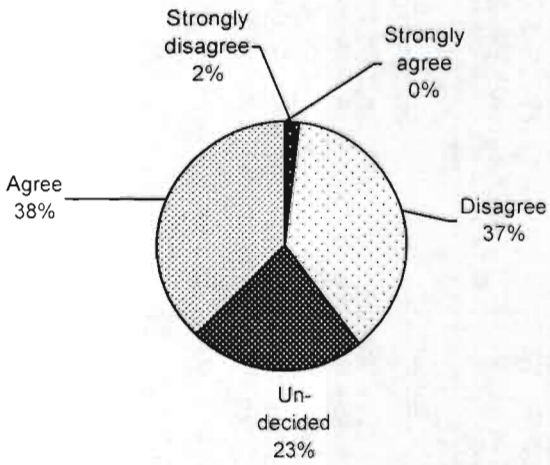
Ekurhuleni campus:



North-West campus:



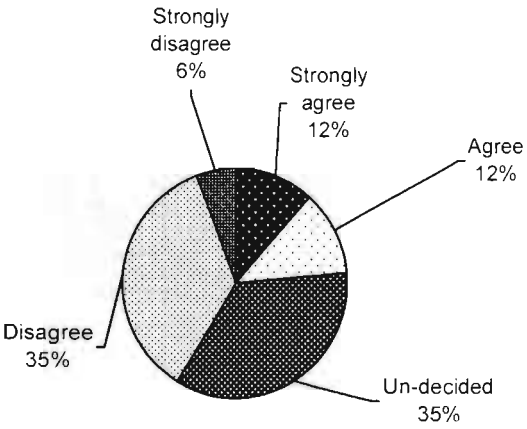
All campuses:



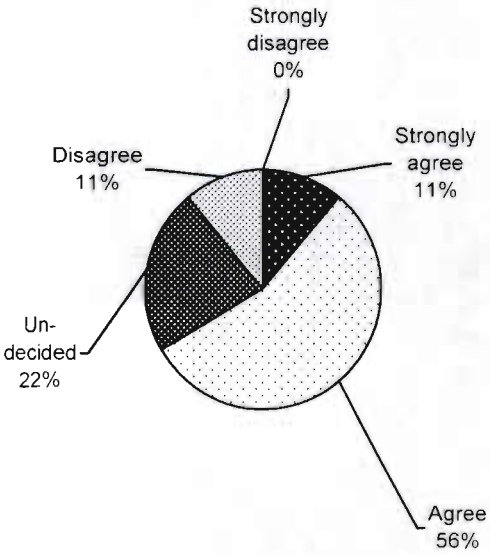
Question 6

After watching the video and doing the exercises I feel that I have learned more than in a 'normal' lecture.

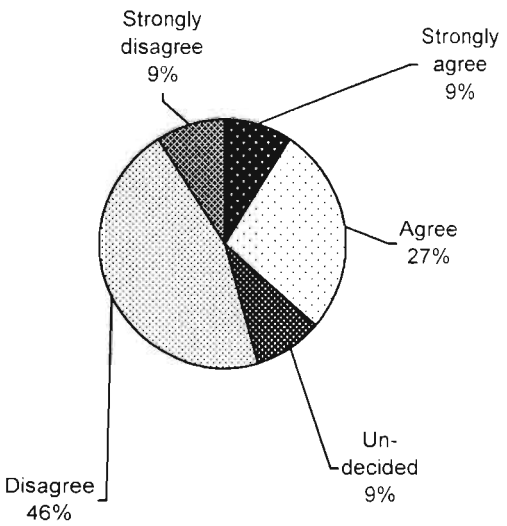
Vanderbijlpark campus:



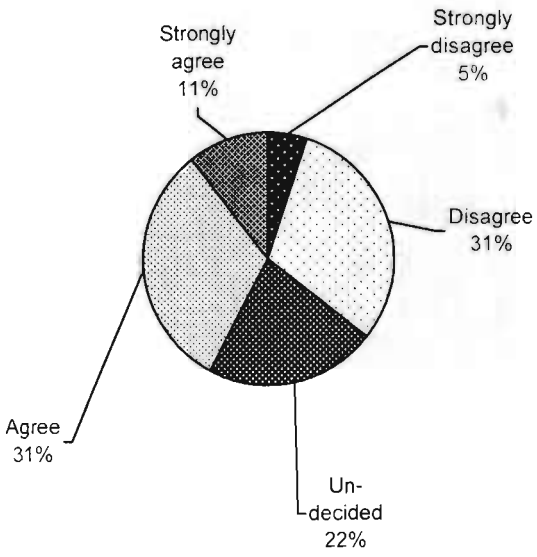
Ekurhuleni campus:



North-West campus:

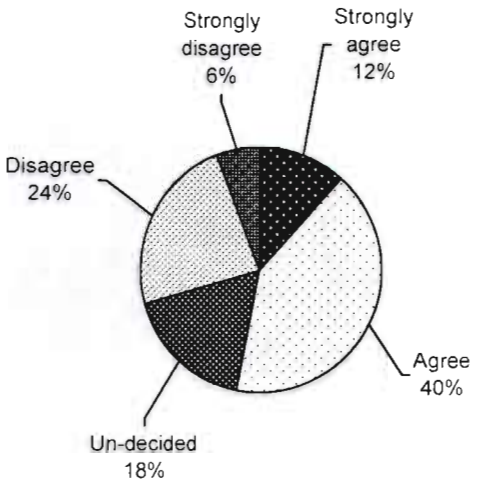


All campuses:

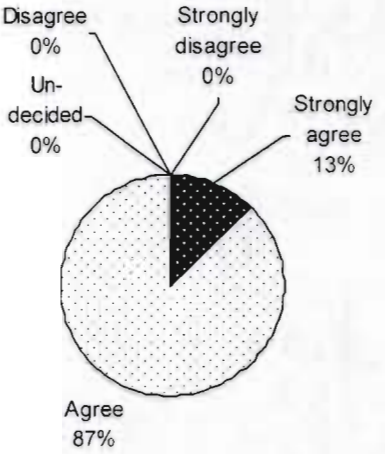


Question 7
I enjoyed having opportunities to share opinions and experiences with classmates in the group.

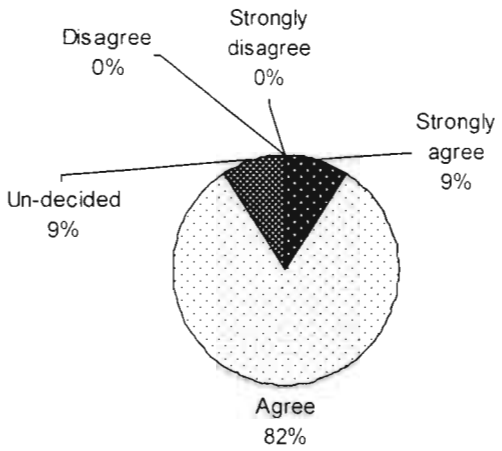
Vanderbijlpark campus:



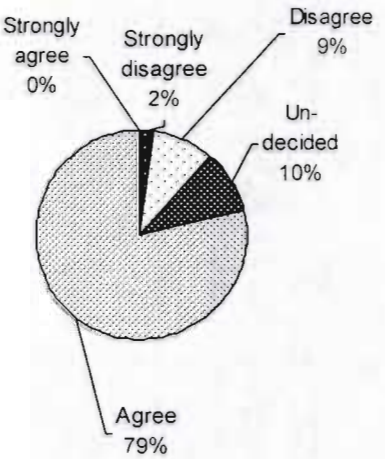
Ekurhuleni campus:



North-West campus:

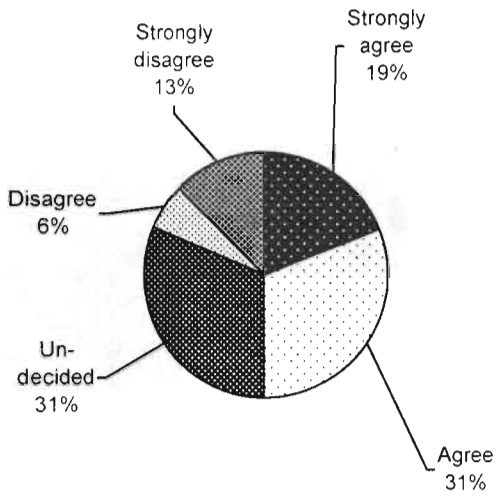


All campuses:

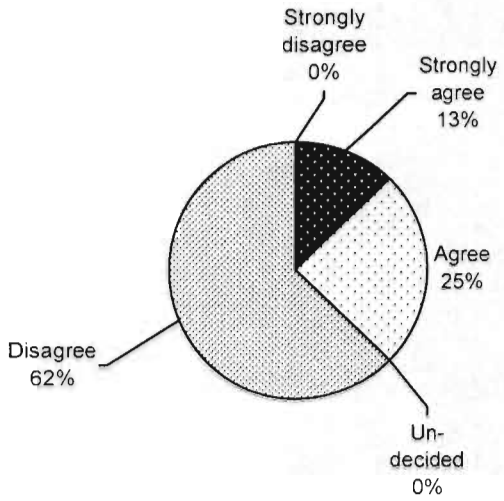


Question 8
There were no conflicts during the group work.

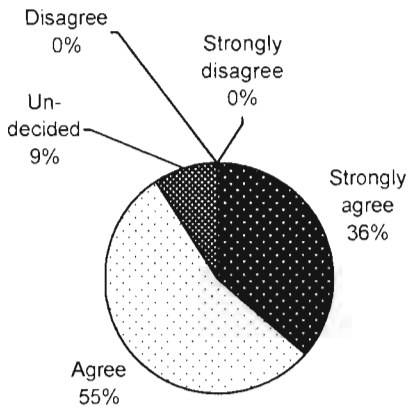
Vanderbijlpark campus:



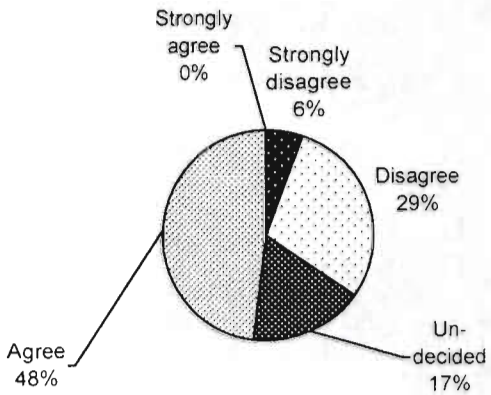
Ekurhuleni campus:



North-West campus:

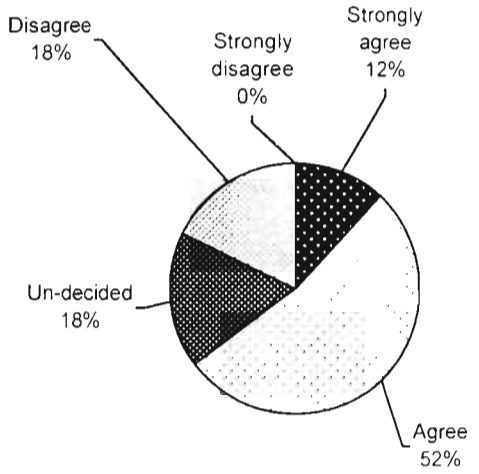


All campuses:

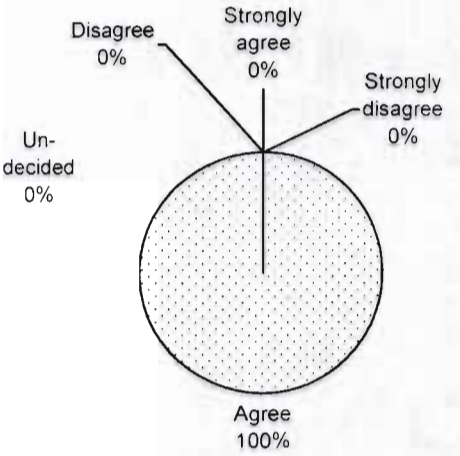


Question 9
We shared opinions about the visual content of the video during the group work.

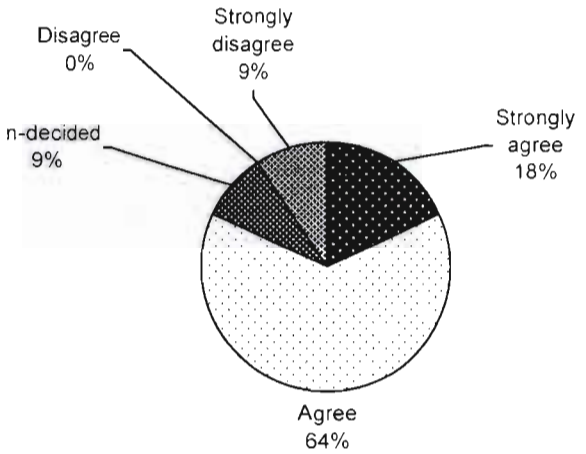
Vanderbijlpark campus:



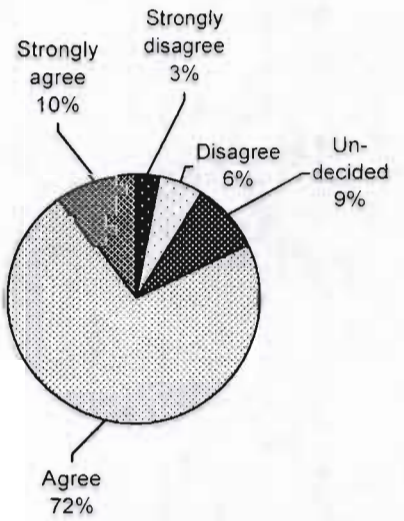
Ekurhuleni campus:



North-West campus:

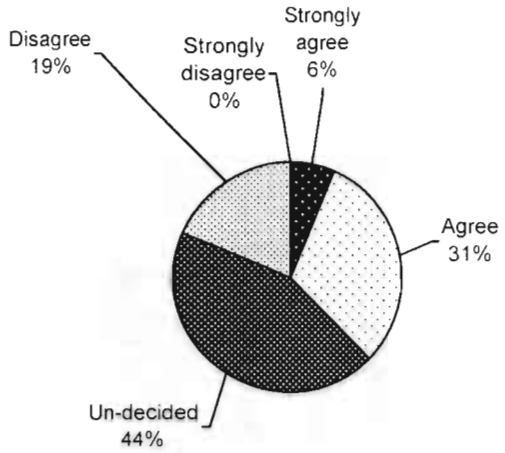


All campuses:

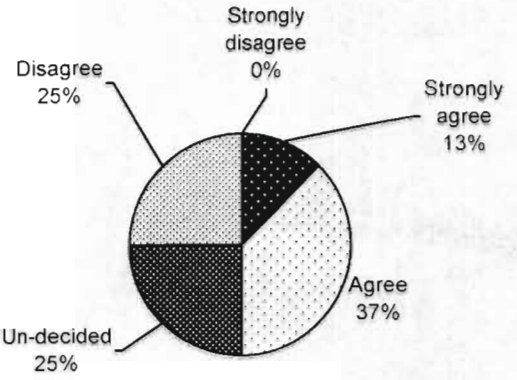


Question 10
Discussing the visual content of the video dominated the group work.

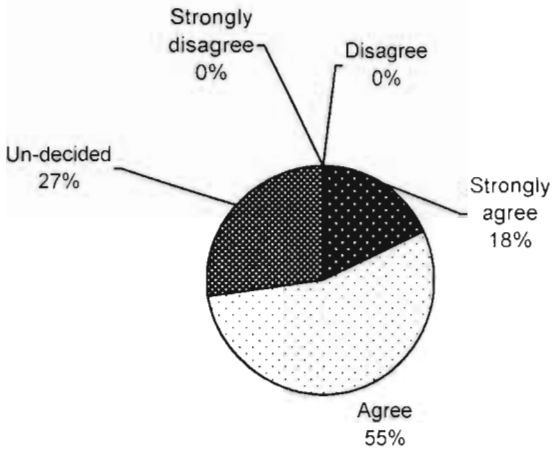
Vanderbijlpark campus:



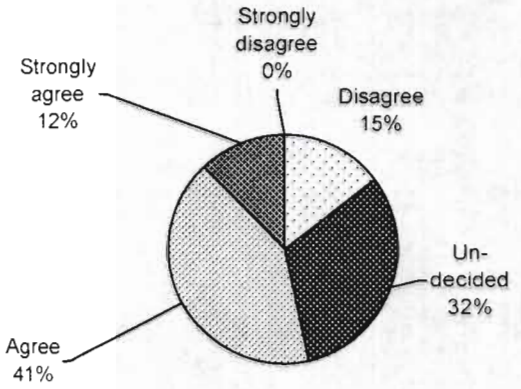
Ekurhuleni campus:



North-West campus:

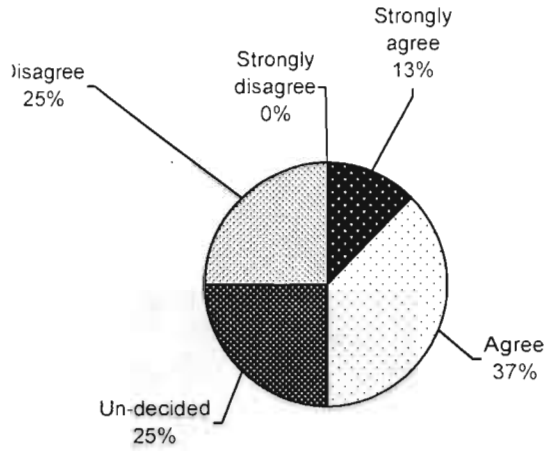


All campuses:

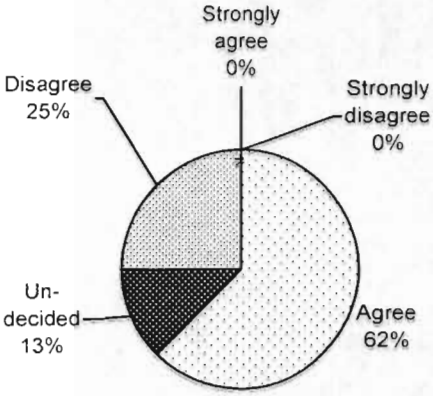


Question 11
Working in a group prevented us from completing the task quickly.

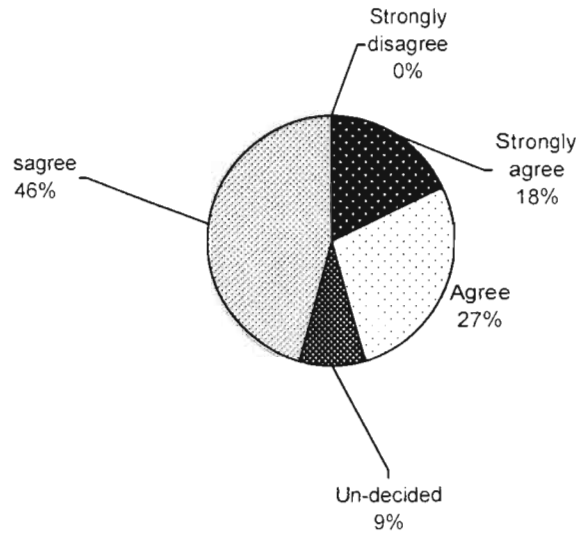
Vanderbijlpark campus:



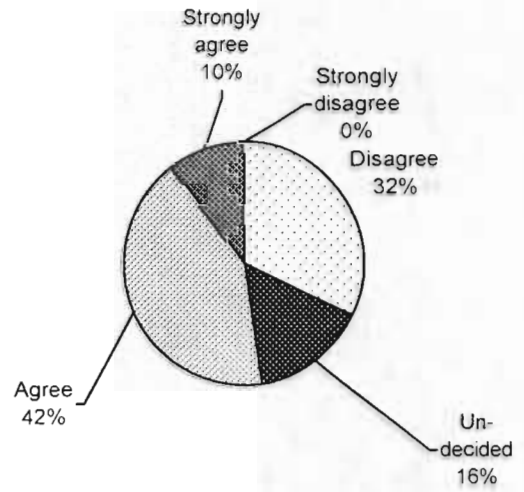
Ekurhuleni campus:



North-West campus:

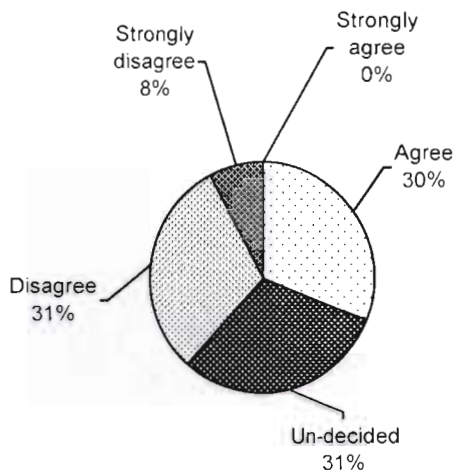


All campuses:

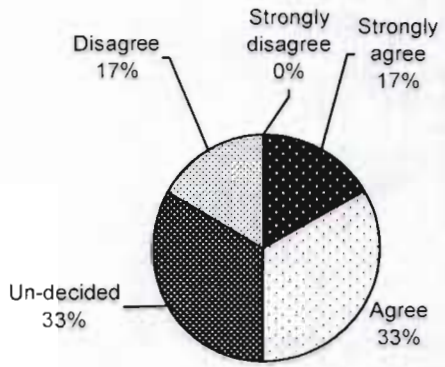


Question 12
The group discussion we had was memorable.

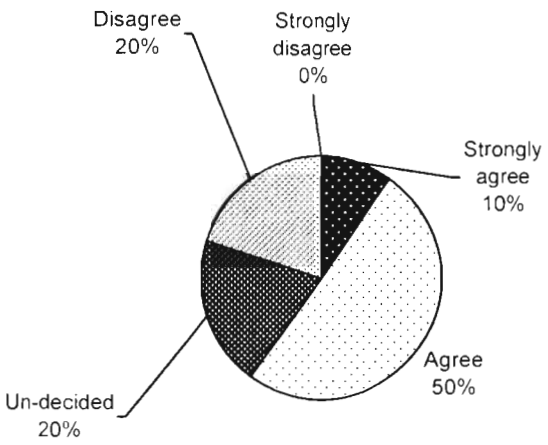
Vanderbijlpark campus:



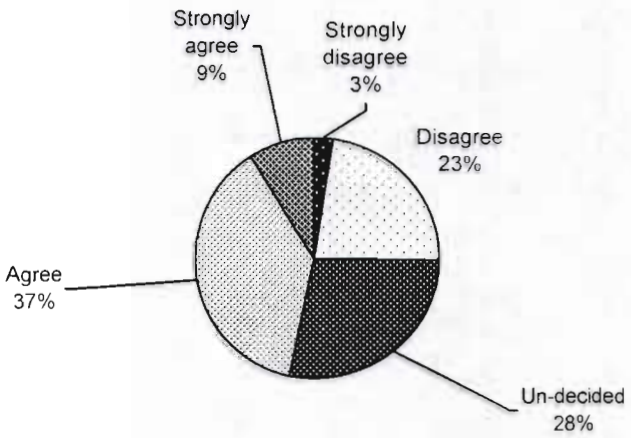
Ekurhuleni campus:



North-West campus:



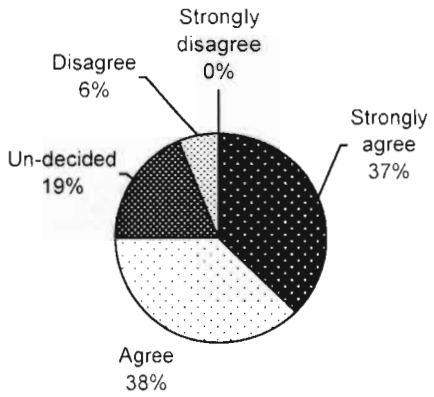
All campuses:



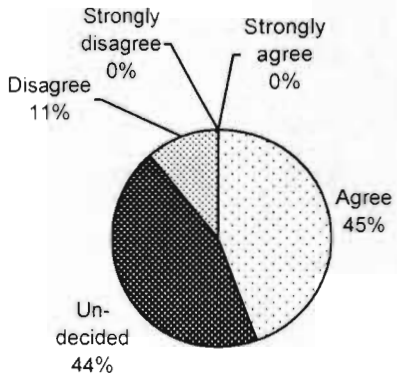
5.2.3 Questionnaire 2B – To determine learners' attitudes towards non-visual learning after the lecture

Question 1
I was able to complete the brief without difficulty.

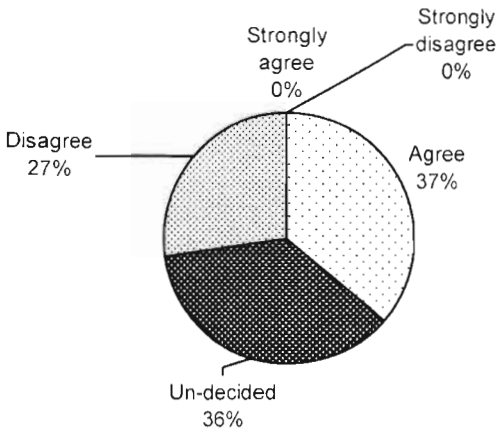
Vanderbijlpark campus:



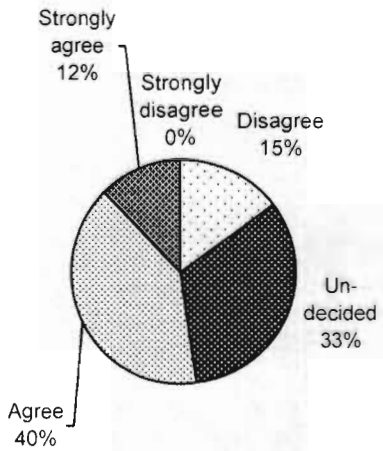
Ekurhuleni campus:



North-West campus:

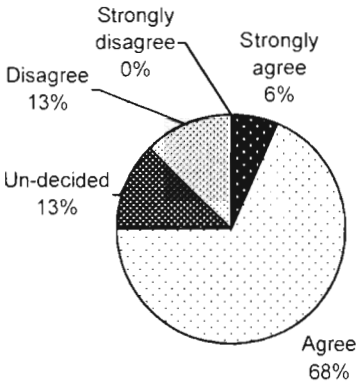


All campuses:

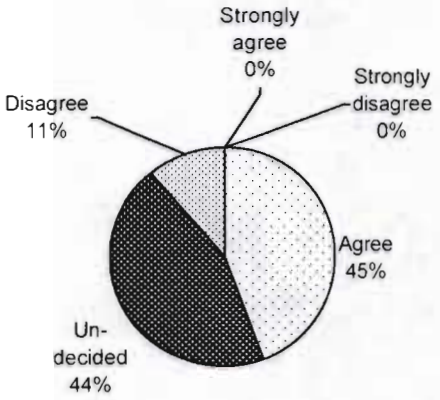


Question 2
I had enough information to complete the brief.

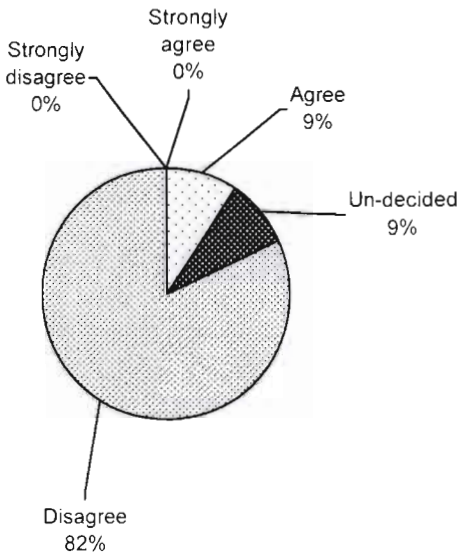
Vanderbijlpark campus:



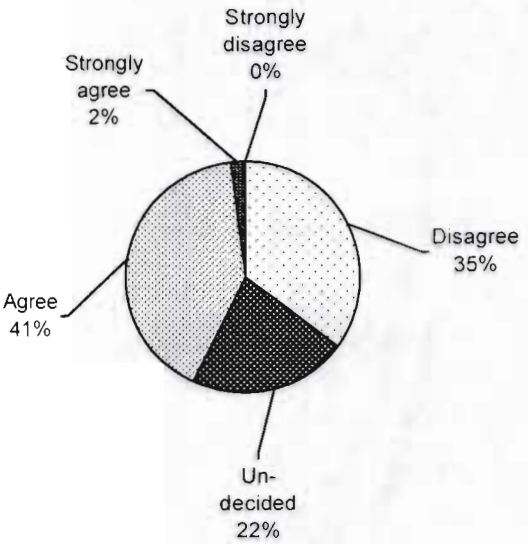
Ekurhuleni campus:



North-West campus:

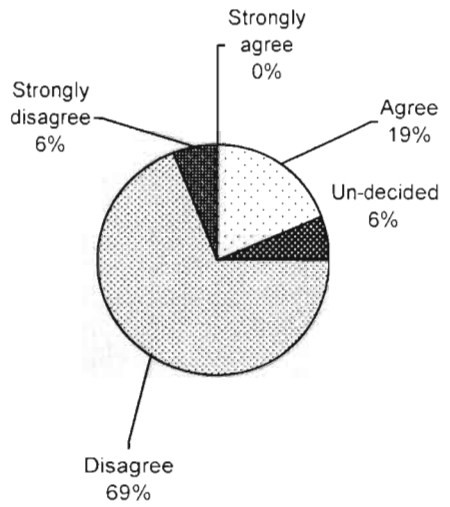


All campuses:

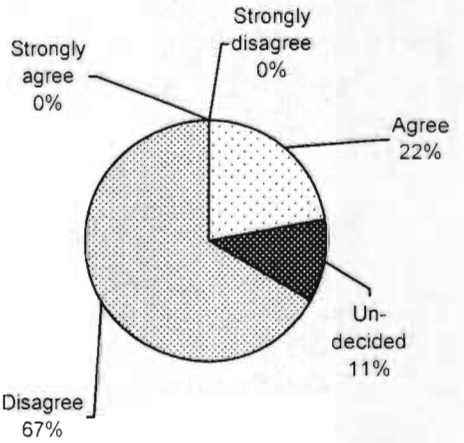


Question 3
I found the information supplied confusing.

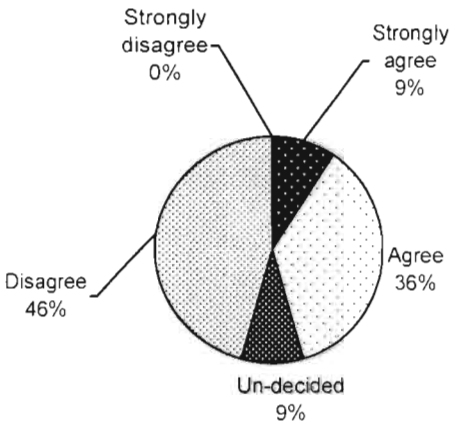
Vanderbijlpark campus:



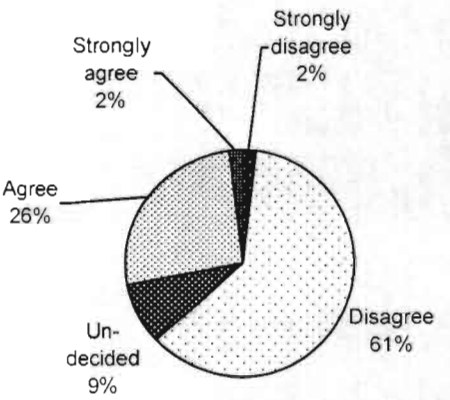
Ekurhuleni campus:



North-West campus:

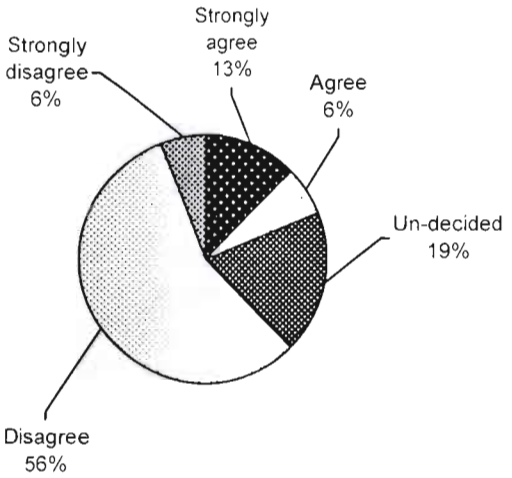


All campuses:

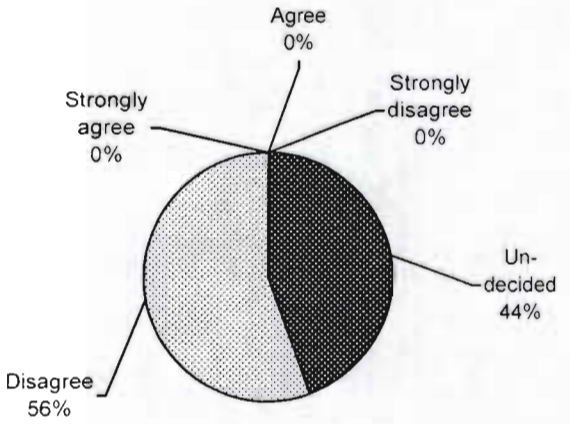


Question 4
The lecture session was boring.

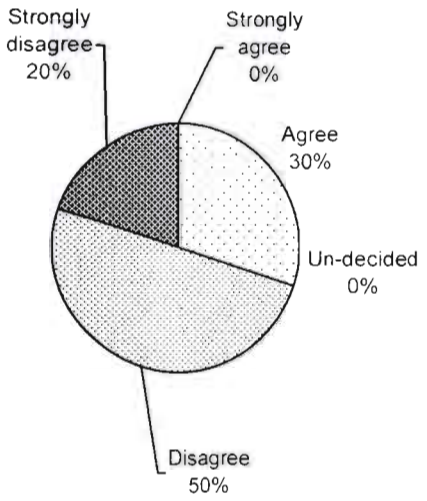
Vanderbijlpark campus:



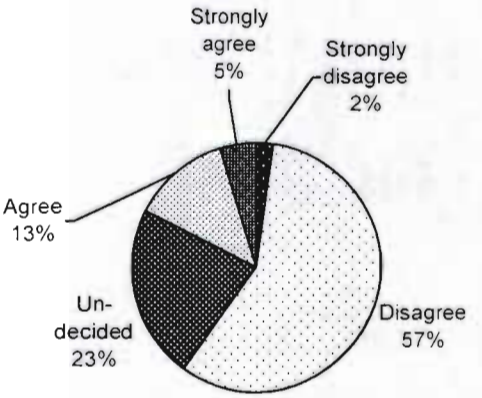
Ekurhuleni campus:



North-West campus:

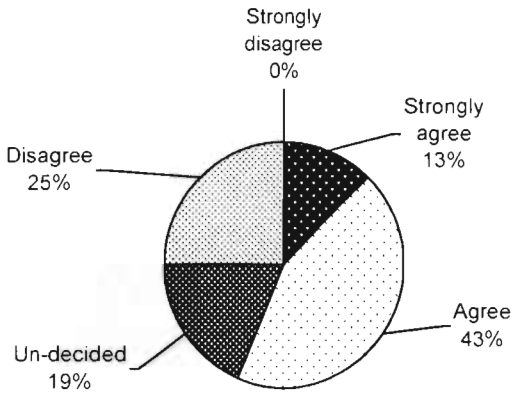


All campuses:

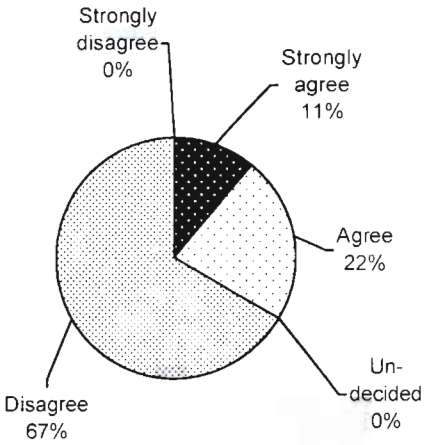


Question 5
I could concentrate easily for the whole duration of the lecture.

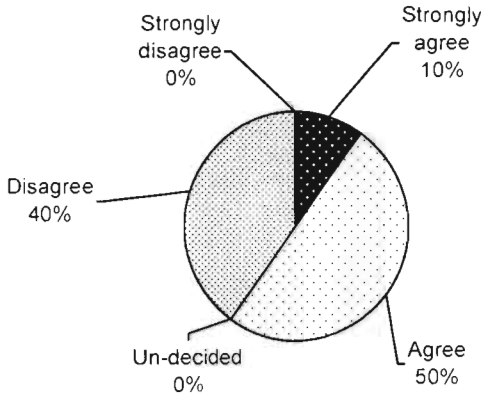
Vanderbijlpark campus:



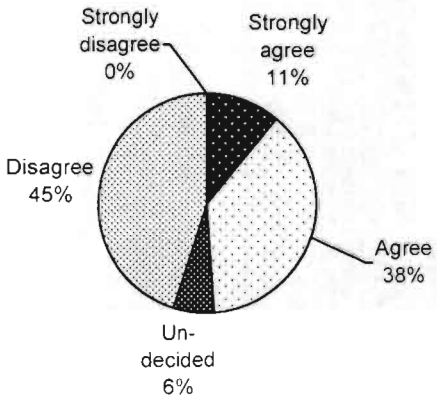
Ekurhuleni campus:



North-West campus:



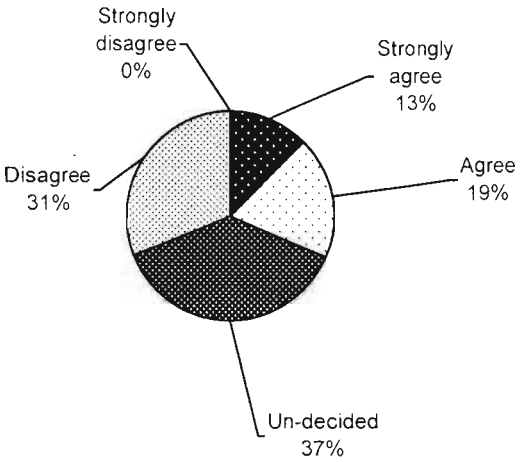
All campuses:



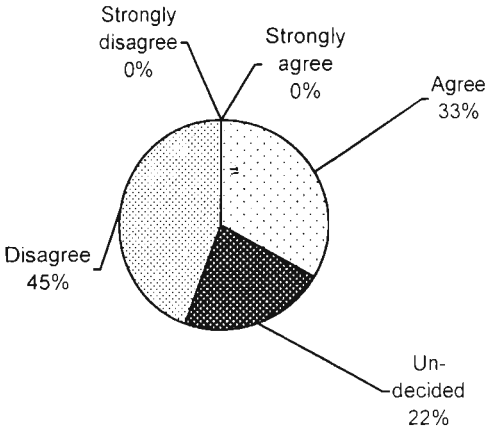
Question 6

I don't think that any extra visual information could have helped me answer the brief better.

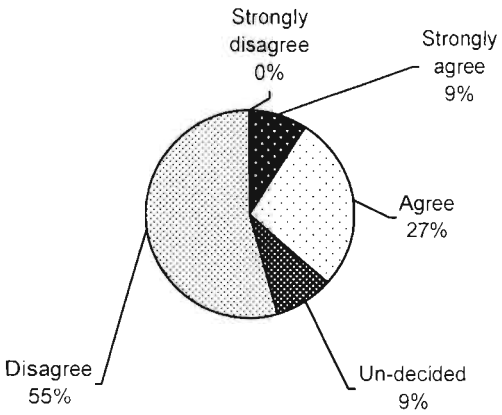
Vanderbijlpark campus:



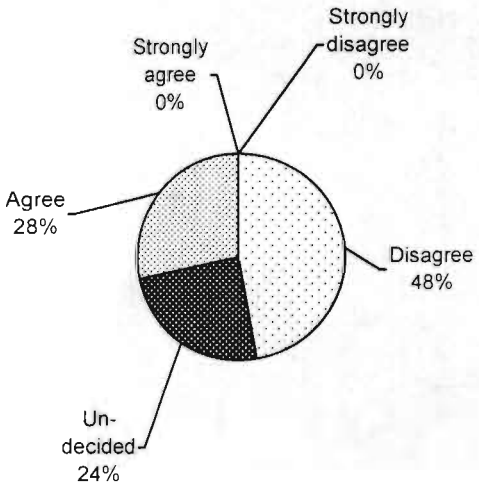
Ekurhuleni campus:



North-West campus:

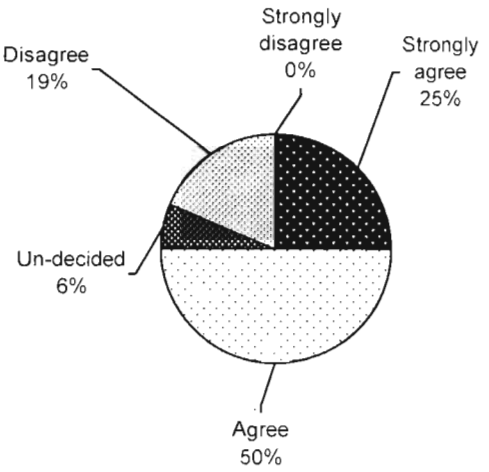


All campuses:

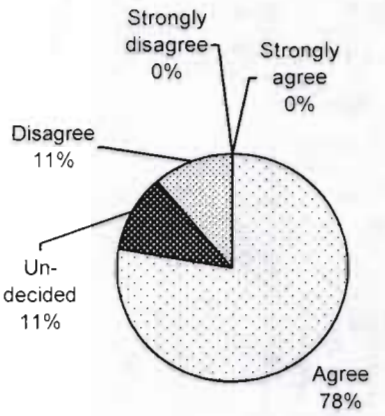


Question 7
Working on my own has enabled me to complete the task quickly.

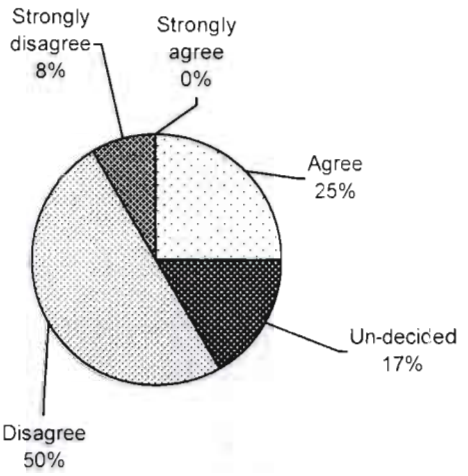
Vanderbijlpark campus:



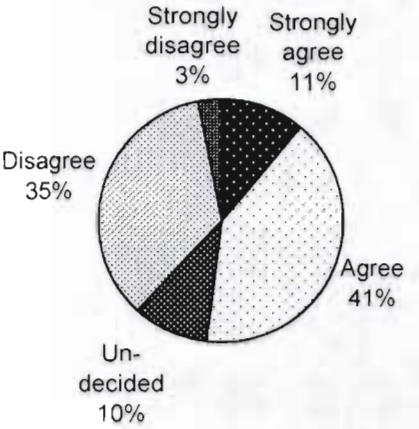
Ekurhuleni campus:



North-West campus:

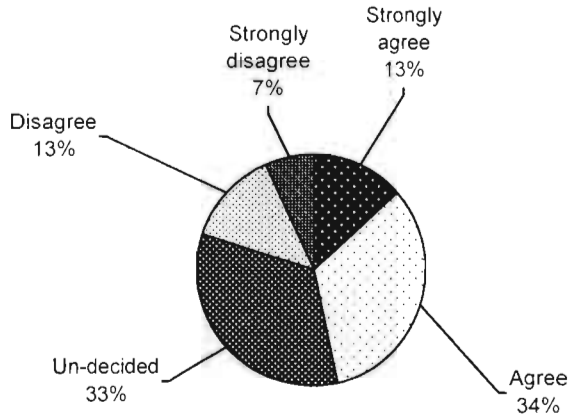


All campuses:

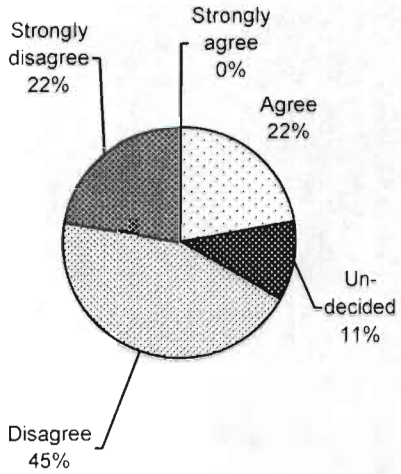


Question 8
I enjoyed working independently without input from others.

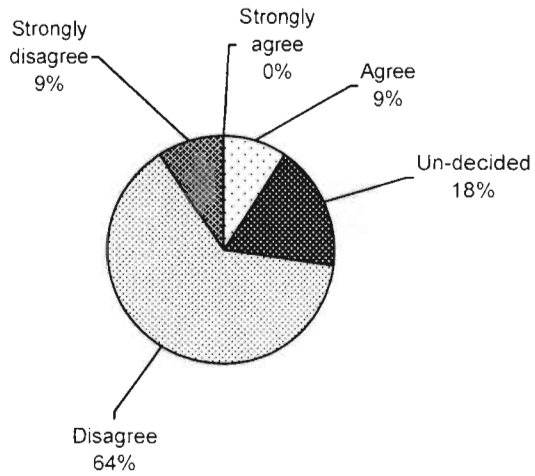
Vanderbijlpark campus:



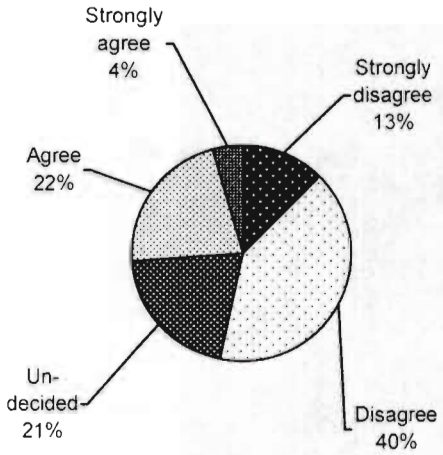
Ekurhuleni campus:



North-West campus:



All campuses:



5.3 Summary

A summary of this chapter is included in table format (Table 5.1). The highest scores overall have been highlighted in bold for ease of legibility. A discussion of the learners' responses is included in the following chapter.

All campuses:

Questionnaire 1 – To determine learners' general attitudes towards visual and co-operative learning.

Table 5.1: Combined summary of results Questionnaire 1

Question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1. In my class we regularly use visual information.	0 %	14.6 %	14.3 %	**44.6 %**	26.3 %
2. In my class this year we have regularly used visual information in assignments.	6.3 %	33.3 %	9 %	**37.3 %**	14 %
3. I regularly employ visualisation techniques such as mind maps when I study.	0 %	18.6 %	23.3 %	**33 %**	25 %
4. In my class this year we have regularly watched films.	**38.3 %**	18 %	6.6 %	27.3 %	9.6 %
5. I enjoy working on assignments with large amounts of visual content.	1.6 %	7.6 %	9.3 %	**48.6 %**	32.6 %
6. I prefer watching a film regarding a topic we have covered in class as it helps me remember more during the exam.	1.3 %	3.3 %	9.6 %	36.6 %	**49 %**
7. Study material with visual illustrations in the text is more exciting than text on its own.	0 %	5 %	0 %	**53 %**	42 %
8. I find the visual images in study material distracting.	34.3 %	**43.6 %**	11 %	11 %	0 %

9. In my class this year we have regularly done group work in class.	3.3 %	12.6 %	6.3 %	**68.3 %**	9.3 %
10. When I work by myself (instead of with a partner or small group) I usually do better.	0 %	16.3 %	18 %	**45.3 %**	20.3 %
11. Usually, I find working with a partner to be more interesting than working alone in class.	3 %	11 %	**34.3 %**	23.3 %	28.3 %
12. Usually, I prefer that the instructor select the partner or group of classmates with whom I will be working.	14.6 %	20.6 %	25.3 %	**29.6 %**	9.6 %
13. I prefer working with classmates from the same background as me.	6 %	**40 %**	22 %	29 %	3 %
14. When I work in a small group I usually learn more and do better than in a large group.	1.6 %	11 %	15.3 %	**39.3 %**	32.6 %
15. Usually, I find working with a group to be a waste of time.	25.3 %	**40 %**	24.6 %	8.3 %	1.6 %
16. I prefer to study 'parrot fashion' rather than use mind maps or visualization techniques.	16 %	**41 %**	26 %	10.6 %	6.3 %
17. I remember more when I work by myself rather than with a group.	12 %	24 %	**28.3 %**	28 %	7.6 %
18. Doing group work is good preparation for working in the graphic design industry.	0 %	7.3 %	4.6 %	**58.6 %**	29.3 %
19. I do not enjoy watching videos based on content we have to cover in class.	**50.6 %**	38.6 %	6 %	3 %	1.6 %
20. Visual illustrations help me remember more during the exam.	0 %	0 %	13.3 %	**53.6 %**	32.3 %

Questionnaire 2A: To determine learners' attitudes towards visual and co-operative learning after watching the video and working in a group

Table 5.2: Combined summary of results Questionnaire 2A

Question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1. I was able to complete the brief without difficulty.	0 %	**39.3 %**	29 %	31.6 %	0%
2. I had enough information to complete the brief.	5.6 %	**52 %**	29.6 %	12.6 %	0 %
3. I found the information supplied confusing.	0 %	**59 %**	22 %	16 %	3 %
4. The lecture session was boring.	3.6 %	**41.3 %**	26.6 %	26.3 %	2 %
5. I could concentrate easily for the whole duration of the lecture.	2 %	37.3 %	23 %	**37.6 %**	0 %
6. After watching the video and doing the exercises I feel that I have learned more than in a 'normal' lecture.	5 %	30.6 %	22 %	**31.6 %**	10.6 %
7. I enjoyed having opportunities to share opinions and experiences with classmates in the group.	2 %	8 %	9 %	**69.6 %**	11. 3 %
8. There were no conflicts during the group work.	4.3 %	22.6 %	13.3 %	**37 %**	22 6 %
9. We shared opinions about the visual content of the video during the group work.	3 %	6 %	9 %	**72 %**	10 %
10. Discussing the visual content of the video dominated the group work.	0 %	14.6 %	32 %	**41 %**	12.3 %

11. Working in a group prevented us from completing the task quickly...	0 %	32 %	15.6 %	**42 %**	10.3 %
12. The group discussion we had was memorable.	2.6 %	22.6 %	28 %	**37.6 %**	9 %

Questionnaire 2B – To determine learners' attitudes towards non-visual learning after the lecture

Table 5.3: Combined summary of results Questionnaire 2B

Question	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
1. I was able to complete the brief without difficulty.	0 %	14.6 %	33 %	**40 %**	12.3 %
2. I had enough information to complete the brief.	0 %	35.3 %	22 %	**40.6 %**	2 %
3. I found the information supplied confusing.	2 %	**60.6 %**	8.6 %	25.6 %	2 %
4. The lecture session was boring.	2 %	**54 %**	21 %	12 %	4.3 %
5. I could concentrate easily for the whole duration of the lecture.	0 %	**44 %**	6.3 %	38.3 %	11.3 %
6. I don't think that any extra visual information could have helped me answer the brief better.	0 %	**43.6 %**	22.6 %	26.3 %	7. 3 %
7. Working on my own has enabled me to complete the task quickly.	2.6 %	26.6 %	7.6 %	**31 %**	8.3 %
8. I enjoyed working independently without input from others.	12.6 %	**40.6 %**	20.6 %	21.6 %	4.3 %

CHAPTER SIX

DISCUSSION OF RESULTS

6.1 Introduction

The results and findings of the exploratory study are discussed in further detail. The number of learners enrolled for the subject History of Art and Design 1 at the three campuses of the Vaal University of Technology (VUT) between 2002 and 2005 is illustrated in Table 6.1. The pass rate averages are also indicated for comparison.

Table 6.1: Learner numbers and pass rates

	Vanderbijlpark Campus		**Ekurhuleni Campus**		**North-West Campus**	
Year: **2002**	June	Nov	June	Nov	June	Nov
Number of learners enrolled for History of Art and Design 1	36	36	5	27	19	19
Average pass rate per year	86.9		41.8		68.7	
Year: **2003**	June	Nov	June	Nov	June	Nov
Number of learners enrolled for History of Art and Design 1	34	38	16	22	19	20
Average pass rate per year	76.9		66.4		69.4	
Year: **2004**	June	Nov	June	Nov	June	Nov
Number of learners enrolled for History of Art and Design 1	46	50	16	18	3	2
Average pass rate per year	54.2		47.5		75*	
					*inconclusive as only one student wrote and passed the November examination	

Year: **2005**	June	Nov	June	Nov	June	Nov
Number of learners enrolled for History of Art and Design 1	39	42	27	29	2	1
Average pass rate per year: June exam only as November results unavailable at time of publication	47		64.5		50	

The exploratory study determined how learners experienced a combination of visual learning and co-operative learning approaches. However, the end of year examination results indicated whether or not learners had actually benefited from an introduction of these approaches. As indicated by Table 6.1 above, regardless of the learners' own experience of the visual learning and co-operative learning approach, the increase in the level of visual learning and co-operative learning in 2004 impacted negatively on the learners' examination results. The learners' examination results, as indicated above, as well as their responses to the questionnaires and in the focus group interviews that were held after the implementation of the exploratory study, indicated their attitudes to the visual learning environment whilst utilising co-operative strategies.

According to Geyser and Wolhuter (2001:94), probably no other data collection tool is used more frequently in social research than the questionnaire. The questionnaire allows for the accumulation of ideas at relatively low cost to the researcher. However, it must be kept in mind that questionnaires may impose certain limitations on the research subject, such as the inability or unwillingness of subjects to participate. These factors were considered when assessing the results. Although there were indicators that learners may respond in a particular manner to a certain question (based on previous examination result averages for a particular campus, for example), the results yielded in the study were, to some extent, unexpected. Furthermore, selected quotes that illustrate the main outcomes of the study, taken from the focus group interviews, are included in this chapter (see 6.2 below).

6.2 Results and findings

With regard to the co-operative learning experience and the group work the learners had completed during the exploratory study, 69.6% of the learners at all three campuses were in agreement that the lecture was enjoyable. Thirty-seven per cent of learners admitted that no conflict had been experienced during the group work and 72% acknowledged the positive sharing of opinions regarding the video content with the group. However, 41% of all respondents agreed that the group work discussion centred on the content of the video while a further 32% were uncertain. Only 37.6% of learners found the group discussion memorable. During the focus group interviews following the exploratory study, a vast majority of learners said that they preferred the 'standard' approach of the lecture (the lecturer-based approach) to the video and group discussion that followed (see Annexure F). During the discussion learners reached a consensus that the lecture was more interesting than the video chosen for the exploratory study. (Quotes: "I did not enjoy the content of the video"; "I did not enjoy the presenter in the video"; "The sound quality of the video was bad"; "I did not understand what the presenter in the video was talking about.") Learners agreed that they found the lecture more memorable, as the lecture enabled them to take notes without being distracted by "too many visuals".

Regarding the 'standard' lecture approach, 60.6% of learners disagreed when asked whether the lecture was confusing and 54% disagreed with the statement that the lecture was boring. Only 26.3% of learners were convinced that extra visual material could have helped them perform better in the worksheet. During the focus group interviews some learners said that they found the lecture more memorable as they were able to take notes while the lecturer was speaking and they could ask questions afterwards to which the lecturer had ready answers. (Quote: "The lecturer is available if I have a question.") Although most learners agreed that additional visual content in the form of videos or visual presentations would be beneficial, they were unprepared to give up any spare time in order to have access to this material. (When asked if the learners would be willing to come in on a Friday afternoon after class in order to watch films which may be relevant

to the course most learners answered with "No".) Surprisingly, the learners were satisfied with the amount of visual information shown during the lecture, most preferring to take down notes while they listened and observed. They argued that the darkened venue in which they watched the video was not conductive to note-taking and that the results of the group discussions were inconclusive. The learners expressed interest in increased experimentation with visual images as part of the process of their practical work but found it problematic in the context of this class.

Another perceived problem was that learners allowed the presence of one or two group participants who lacked positive interpersonal resources to interfere with their engagement of the learning task. (Quote: "As soon as the lecturer moves away to another group the group disintegrates into chaos.") Learners differed in their attitudes towards the task at hand and also in their subject matter background knowledge, hard work, motivation to succeed, use and implementation of appropriate, suggested strategies and understanding of the task. (Quotes: "Some learners are lazy and don't want to take part"; "I end up doing all the work for my group"; "Group work wastes time.") Overall, and by their own admission, most learners were not very positive in their motivation to succeed (Quote: "Some of us did the work and some discussed the weekend [plans]".)

The answers given in the questionnaires differed slightly, based on the three campuses. It is significant that in the past the average examination results were higher at the Vanderbijlpark campus than at the other two campuses, with North-West campus consistently scoring the lowest in terms of numbers of learners who gained entry into the examination as well as of final examination results.

At the Vanderbijlpark campus learners argued that they did not enjoy participating in the group discussion. They gave reasons such as poor group dynamics and an express need for someone other than a member of the group to fill in the gaps in their discussion. Learners were not merely satisfied with their own conclusions but needed affirmation and encouragement that their findings were correct. Learners at the Ekurhuleni campus enjoyed the group work as long as the group remained small (fewer than four

participants). As soon as the group was bigger, the discussion turned to chaos. At the Ekurhuleni campus learners seemed to hold the instructor's opinion in less regard than at the Vanderbijlpark campus and therefore their need for approval from the instructor was diminished. When presented with a statement: "There were no conflicts during the group work" 62% of Ekurhuleni learners disagreed as opposed to 6% at the Vanderbijlpark campus. Yet, when presented with the statement: "I enjoyed having opportunities to share opinions and experiences with classmates in the group" 87% of learners at the Ekurhuleni campus agreed as opposed to only 40% of the learners from the Vanderbijlpark campus (Quote from learner at Ekurhuleni campus: "I think the video was better because sometimes you have something on your mind and you can't actually explain it ... until the next person comes along and goes its like that and like that ... so it's better...").

It is significant that learners with previously higher than average examination scores (the Vanderbijlpark group) preferred to keep the 'standard' lecture system in place rather than the group work, as this enabled them to engage in individualised study, work more quickly and therefore achieve an optimum result. Learners with lower scores found the group work more engaging, yet claimed to have learned less than in the structured lecture approach. Presented with the statement: "After watching the video and doing the exercises I feel that I have learned more than in a 'normal' lecture" 56% of learners at Ekurhuleni campus agreed, as opposed to only 12% of learners at the Vanderbijlpark campus.

One may deduce that group work is appealing for its entertainment factor but that learners actually learn more in a more traditional environment. Learners at the North-West campus answered very positively when questioned about their attitudes to the group work – yet, when observed, the group work itself was problematic as not all learners chose to engage in it.

Because the groups in this study were relatively small (at most 22 participants) they functioned well until all the participants joined in the discussion. The role of the group participants who disrupted the discussions after that point may need further investigation.

There were instances where the group work did not function as well as a whole – Vanderbijlpark campus with the largest 16 member group – and where individual participants interfered or ignored others' active engagement in the task. Learners raised concerns that there was little control within the group. The active group participants saw both interference and non-participation as disruptive.

Learners showed an increased enthusiasm for a system where the co-ordinator introduces and begins the lecture, followed by structured group work exercises, followed by feedback from the co-ordinator. The practicalities of this system were a concern as the amount of time allocated for this subject per week was seen as too short in order to reach any meaningful conclusions. Given the opportunity to choose an ideal lecture approach, learners repeatedly chose the 'standard' lecture appraoch and cited reasons such as immediate availability of information.

With regard to the visual learning component, most learners (81%) agreed that they found the visual material useful. The responses of the learners differed according to the campus at which they were attending class. Learners at both the Ekurhuleni campus and the North-West campus complained about a lack of visual information given in this class preceding the exploratory study and noted that they very seldom, or never, watched any video material. As at the Vanderbijlpark campus, although most learners agreed that additional visual content, in the form of videos or visual presentations, is beneficial, they were unprepared to give up any spare time in order to have increased access to this material.

The usefulness of the visuals may be divided into two categories: visual material that is readily available, such as the content of a text book or any support documents given out in class, and visual material that is unusual in its delivery, for example the video. Although the learners agreed that the general content of the video was interesting, some were resentful that they had to "sift" through all the information in order to access the information that was relevant to them. One of the reasons cited by learners for the memorable quality of the lecture was that the lecture appraoch gave them an opportunity

to summarise important points and take notes – something which they were unable to do during the video presentation due to speed of information given and darkened venue. All learners agreed that it was easy to discuss the visual material and that this made the work more memorable for the examinations. These results show that learners' primary concern is the recollection of facts for the examination – this leads to surface learning, regurgitation and memorising in order to pass.

According to Peterson (2004:161), the role of the learners' own motivation to succeed in the exercise is significant: "[A]lthough CL (co-operative learning) has been widely researched and used in classrooms at all levels there has been surprisingly little research published on learner motivation for CL." The purpose of this study was to also determine learners' attitudes towards CL (sometimes defined by the term *group work*) used in conjunction with visual methods as well as the perception of the relevance of group work to their chosen profession, graphic design. One of the conclusions based on this research could be that learners respond well to group work tasks and visual material that they perceive as relevant to the industry. Moreover, learners' response is more positive provided they are given adequate amounts of information (sometimes perceived by the lecturer as excessive, with the fear that it may lead to so-called spoon-feeding) and are equipped with the appropriate skills in order to complete the task.

Based on the data collected, it can be concluded that performance would not be significantly enhanced by the addition of more visual material or by re-structuring the curriculum to exclusively include group work learner participation. It should be underscored that the performance group comparisons were meant to establish the appropriateness of the combination of the two methods and to determine whether a need for re-curriculation exists. Furthermore, the results of the exploratory study undertaken at the VUT showed that the use of the combination of the visual learning and co-operative learning approaches is unlikely to lead to a significant improvement in learner learning styles and thereby examination results and learner throughput.

6.3 Summary

Based on the data collected during the exploratory study as well as the preceding increase in visual learning (VL) and co-operative learning (CL) during lecture time, the collaboration between visual learning and co-operative work resulted in a substantially better examination outcome for learners in one sector of the study, namely. the Vanderbijlpark campus of the Vaal University of Technology. Interestingly, these learners reported less enjoyment of the group work and were generally satisfied with the amount of visual stimulation provided before the study. Overall, though, the results were disappointing with no significant improvement being noted at the two satellite campuses. All examination results were weaker than in the previous year. The learners at the North-West campus who were provided with the least amount of visual learning methods and the least amount of group work displayed the highest enjoyment of its inclusion in the course, but achieved significantly lower examination results than the other two campuses (based on the total number of learners in the first-year class who actually gained entry into the examination).

Referring to the data collected, delivering the entire theoretical component of the subject History of Art and Design 1 by incorporating co-operative work as well as an increase in visual data would be likely to produce the following trends: (a) Low performers would have an increased probability of passing the course; (b) the pass marks of average performers would remain the same; (c) the marks of previously high performing learners are likely to decrease. Thus the learners most likely to improve their marks would be the low performers. This estimate is not only based on this study but also reflects earlier studies done by Stockdale and Williams (2004).

As previously stated, graphic design is a skills-based course and the implementation of co-operative learning skills may be applied to both the practical and theoretical courses. The learning of co-operation and group work has relevance to the working situation – it is a means of teaching life skills as part of the graphic design course. A point of discussion

during the focus group interviews was the inclusion of group work to the theoretical component of the course. Learner response was not enthusiastic as the perception existed that the style of learning was different from that of a practical subject class and therefore not as conductive to learning. During the group work, participants' thinking did not alter from a main emphasis on the negative, hindering factors at the beginning to more positive insights in the end, but rather focused on the outcome, which, in the learners' view, was negative without the support of the course coordinator.

The starting point of the study was an investigation into visual learning strategies as used in conjunction with co-operative learning strategies in a higher education setting as well as the assessment of the appropriateness of these learning approaches in the discipline of graphic design at first-year level. In 2004 a learning approach that focused more on visual learning and co-operative learning was introduced and, with the implementation of the exploratory study in the fourth quarter of that year, a form of the combination of visual learning and co-operative learning was implemented and presented to the learners.

Having participated in the exploratory study as well as in the subsequent focus group interviews, learners commented on their responses to these two approaches. Although the ultimate goal of the research was not an improvement in the examination results at the end of that year, the lack of any such significant improvement (see Table 6.1 and Annexure G) can be seen as conclusive that the combination of these two learning approaches are not a valuable learning tool. Although the results were generally negative, learners enjoyed the group work and additional visual material to some extent. This, potentially, represents a promising addition to the instruction currently being offered at the VUT. It is clear that learners are most concerned not with the process of learning and whether any 'valuable' learning actually takes place in the classroom, but with what they can recollect in the examination. The perceptions and attitudes of learners would need to change in order to enhance the learning environment.

CONCLUSION

7.1 Summary of the preceding chapters

The first chapter is an orientation on the fundamentals of visual semiotics and visual culture, visualisation and visuality. Visual literacy, visual learning styles, visual learning methods and visual language and their relevance to design education as well as how these approaches relate to each other are also discussed.

Chapter 2 provides a broad-based survey of graphic design education, both in the South African and the international context. The background of visual learning with emphasis on visual research, and visual learning methods and their importance to design are commented on.

Discussing one of the trends that have emerged in graphic design education, McCoy (1998:4) notes that "it was professional practice, not education that developed spontaneously as the first phase of graphic design's professional development". Her views are echoed by Swanson (1998:14) who strengthens the argument by stating: "design programmes (have) a tendency towards professional rather than general education". Other design educators bemoan the lack of inclusion of a theoretical grounding in the teaching of graphic design history. Educators such as Lupton and Abbott Miller (1998:215), who have commented on design courses around the United States, have come to recognise that history courses are crucial to the education of designers, grounding learners in a critical discourse about the origins and future of their discipline.

Furthermore, in Chapter 2 the differences between visual and verbal learning are commented on. Visual learning may be summarised as any learning that is aided by the

use of imagery, whereas verbal learning is thoroughly entrenched in psychological educational theories. The key educational theories which are relevant to verbal learning in this study include Pavlovian theories of partial reinforcement as well as Skinner's influential theories on reinforcement and verbal learning. The field of visual research is also touched on and its relevance to the study is summarised. Generally and traditionally, researchers dealing with the subject of visual research have been limited to the fields of photography, anthropology, ethnography and, to a certain extent, education. It is in the context of a visually saturated Western world that this study takes its cue – learners need to be instructed in a medium that is as accessible and as familiar to them as possible – the idea of introducing more visual material therefore seems beneficial.

Chapter 3 discusses the learning approach known as co-operative learning (CL) within a constructivist educational framework. This framework places the focus on understanding the individual learner and can use the principles of co-operative learning as it can be seen as a didactic means in organising small-group activities. As graphic designers are often required to work as part of a team, the idea of introducing co-operation in the learning environment is valid.

Recently many claims have been made regarding the effectiveness of co-operative learning or group methods but, as Peterson and Miller (2004:161) state, "the use of CL has become widespread at all educational levels," and "a great deal of research has supported the effectiveness of CL". Avenant (1990:170) confirms this when he states that "research has shown that educational objectives can be achieved extremely effectively by group method". Various institutions have embraced the validity of co-operative learning within their design departments with varying rates of success. CL is credited with meeting the requirements posed by the structures imposed by outcomes-based education, thereby making it a legitimate point of study. One of the underlying problems experienced with co-operative learning is assessment and the evaluation of positive outcomes within the group. This aspect has been researched by Mills and Woodall (2004:477), who are of the opinion that evaluating the success of group work can be

difficult. Various other researchers, such as Gatfield (1999), Dunne and Bennet (1991) as well as Cowie *et al.* (1994), have investigated different aspects of group interactions to gauge the outcomes. According to international studies, co-operative learning has also been successful as an educational tool within a multi-ethnic learner environment as is often the case at educational institutions in South Africa.

The empirical component of the study is introduced and discussed in Chapter 4. The need for the study, the supposed reasons for the low examination results for the subjects History of Art and Design 1 at the Vaal University of Technology (VUT), and cognitive learning are described. The implementation of the exploratory study is examined and explained. The study arose out of a perceived need to intervene in the low end-of-year results and resultant poor throughput rate of learners enrolled in the History of Art and Design 1 course in the first year of their graphic design studies at the VUT. Perceived reasons for the low examination results range from learners' inadequate English language proficiency (the language of instruction at the Vaal University of Technology) to a lack of interest in the course. This resulted in the subsequent research into aspects of visual learning and co-operative learning strategies as well as the use of the combination of these methods with a view to determining the appropriateness of these methods as a means of improving learner enjoyment of the course and, ultimately, examination results.

A discussion of cognitive learning is included in Chapter 4. Cognitive objectives are met and the learner's intellectual abilities and techniques can be effectively developed when the learner masters memorising facts and has a sound ability in solving intellectual problems. For first-year graphic design learners at the VUT these objectives are met, amongst others, through the recollection of historical data in a subject like History of Art and Design 1. Once these objectives are met they are later applied to the practical component of the course where learners apply such recollected knowledge when designing packaging, for example, or developing a web page.

The study was carried out over a three-year period with groups of first-year learners enrolled in the graphic design course at the three campuses of the Vaal University of

Technology. The exploratory study was implemented in 2004 with 43 learners who were all enrolled for the subject History of Art and Design 1. In the context of the learner enrolment numbers for this subject at other tertiary education institutions in South Africa this number of learners may seem low, but it is an average at the Vaal University of Technology. The results yielded by the implemented exploratory study were unexpected and in parts inconclusive – no group showed a significant improvement in results by utilising visual learning combined with co-operative learning strategies. It can be said with a reasonable degree of confidence that this is in no part due to the fact that the visual learning and/or co-operative learning strategies were not implemented properly. A great deal of preparation and care was taken in the inclusion of the visual methods and co-operative strategies into the lecture settings as well as in the exploratory study.

One could conclude that some learners prefer an increased visual learning approach, while other learners enjoy the group work, but few learners take pleasure in and benefit from a combination of these approaches. Furthermore, independently of this exploratory study, at the beginning of 2005 the graphic design history course was significantly overhauled and a new, additional generic module was introduced whereby learners are encouraged to follow a self-study introduction to History of Art and Design 1 as well as a generic Art Theory component. The course is based on a continuous assessment curriculum in the first semester, followed by a more intense and subject-specific History of Graphic Design 1 course in the second semester. This overhaul was not introduced without criticism, as some lecturers felt that learners who may have problems with inadequate English language proficiency in the original course may not cope with the new, more difficult, intensive and thereby more demanding course. On the other hand, the new module did include an increased level of learner group participation and an increased use of visuals, which include not only a prescribed book but also access to articles and video, as well as the learners' own research –all useful learning tools. As the examination results will only be available at the beginning of January 2006 it is too early to verify the results.

Chapter 5 showcases the numerical pie-graph summary of responses obtained from the three questionnaires used as part of the exploratory study. Questionnaire 1 dealt with learners' general attitudes towards visual learning/non-visual learning and co-operative learning. Questionnaire 2A examined learners' attitudes towards visual and co-operative learning after participating in a visual learning enhanced lecture and working in a group, and Questionnaire 2B determined learners' attitudes towards non-visual learning after the standard lecture approach where no extra visual learning or group work stimuli were provided. The combined findings of the pie charts are summarised in table format at the end of the chapter.

A discussion of the learners' responses to the exploratory study is the scope of Chapter 6. In summary, the outcome of the exploratory study was not what was expected at the onset of the study. Although some learners responded positively to the increased visual learning component as well as to the group work, overall the learners reported satisfaction with the current system of teaching and did not show any significant improvement during the course of the study.

7.2 Main findings

The specific objectives of the study were the following: (1) the revision of literature on visual learning with emphasis on graphic design; (2) the development of an exploratory study based on the literature review which would focus on the importance and role of co-operative learning in the study of theory subjects for graphic design. Specifically the significance of the combination of visual learning and co-operative learning strategies was vital to the study; (3) the observation of learners conducting themselves in an increased visual learning and co-operative environment as well as the implementation of the exploratory study and the gathering of appropriate data based on its results; and (4) the assessment of the appropriateness of the use of the combination of visual learning and co-operative learning techniques in the teaching of History of Art and Design 1 at the Vaal University of Technology.

The first three chapters met the above requirements in relation to the literature review. The empirical component of the study attempted to meet the further requirements. The results obtained in this study do not categorically indicate that learners who perceive themselves as visual learners would benefit from utilising co-operative learning strategies in the classroom. Although some learners did report enjoyment of the co-operative group work and did identify as visual learners, they did not consider the time spent on the group work as valuable enough to warrant implementation in the classroom.

While learners also recognise that co-operative work will be an important aspect of their future career in graphic design, they find it difficult to work in this environment in the theory classroom situation. Some learners reported a dislike for group work because it meant that the lecturer would not be sufficiently available – they had little trust that possible findings within the group would be correct. (When asked why a learner preferred the 'standard' lecture approach, one learner answered: "The lecturer is available if I have a question.") Some of the reasons given for the negative perceptions of group work were that it gave learners only a limited amount of time per theory lecture in order to follow through properly with the group work, and that the group degenerated into chaos, with learners discussing issues that had no bearing on the work (Quotes: "Some learners are lazy and don't want to take part"; "I end up doing all the work for my group"; "Group work wastes time.")

In addition, those learners who reported enjoyment of the co-operative learning experience reported contradictory findings when asked how well they performed in the examination following such work. It is important to note that the learners who received the greatest benefit and reported the most enjoyment from the experiment were learners with the lowest examination scores. A significant number of learners recognised that their examination results improved when they worked on their own. Similarly, the majority of learners reported enjoyment of the increased amounts of visual material, including the video, as well as the extra illustrations. Although some learners reported dissatisfaction

with the particular video chosen for the exploratory study, the study needs to reflect results of the entire addition of extra visual material, including visuals such as additional illustrations as well as other documentaries and films that were shown to the learners throughout the year. Most learners were also under the impression that increased levels of visual information help them remember more of what they had studied for the examination. As the amount of visual information and the emphasis on co-operation increases, the extent to which it serves the learners may become more apparent.

Having investigated the findings of the exploratory study, it can be concluded that it would not be appropriate to implement a combination of visual learning and co-operative learning formally for the teaching of History of Art and Design 1 at the Vaal University of Technology in order to improve learner participation in the course and ultimately to enhance the examination results. In this context, although it is a teaching method that some learners enjoy, it does not improve final examination results. Moreover, the majority of learners find the combination of strategies disruptive to the learning environment. The increased use of such approaches is also unlikely to lead to a significant improvement in examination results in the long term. Thus, as part of the teaching of the subject History of Art and Design 1 at the VUT, it is not a valuable learning tool.

7.3 Main recommendations

The starting point of this study was a concern for the weak examination results and low throughput rate of first-year graphic design learners in the subject History of Art and Design 1. The introduction of a more visual learning approach in combination with an increased level of co-operative learning strategies was intended to empower the learners and provide a valuable tool in their investigation of this theory subject. As stated above, the ultimate objective was the assessment of the appropriateness of the use of the

combination of visual learning and co-operative learning techniques in the teaching of History of Art and Design 1 at the Vaal University of Technology.

All the observations pointed to the fact that although some learners reported an enjoyment and appreciation of the two approaches, there were few positive outcomes. Therefore, based on this study, the main recommendations are the following:

- Based on the results of the learner questionnaires, the focus group interviews and, keeping the low examination scores at the end of 2004 in mind, the utilisation of a combination of visual learning used with co-operative learning methods is not appropriate in the context of the teaching of the subject History of Art and Design 1 to first-year graphic design learners at the VUT.
- In order to utilise co-operative strategies effectively all learners need to be held individually accountable for their contributions to the segments of their research.
- As many visual learning methods exist, it is important that facilitators utilise the visual methods that are most relevant to their subject. A combination of all visual methods (e.g. an increased level of visual material and the utilisation of mind/concept maps and graphs) may be seen by the learners as excessive.
- Facilitators need to monitor the group work constantly and point out problem areas such as a lack of leadership, bad communication and poor decision making skills.
- Ideally, at first-year level, each group should have an assigned senior-level tutor appointed as facilitator in order to monitor the group more effectively.
- In order to fully benefit from an increased level of visual learning, learners must be willing to devote more time and energy to visual research.
- It is important that lecturers stress the significance of visual learning and draw attention to the opportunities afforded to learners through the use of visual learning methods. Furthermore, the learners need to be active participants in every visual lesson. They should be encouraged to collect visual information, discuss it

and draw conclusions, thus eliminating vagueness which may be associated with a purely oral approach.

- Part of the problem was the inability of most learners to make the connection that the content of the subject History of Art and Design 1 is relevant to the practical component of the graphic design course. A restructuring of the practical component of the course to be more inclusive of the content of this subject could benefit the learning outcome.

7.4 Possibilities for further research

A further study utilising a larger sample size may be recommended. Ideally, a national sample should be investigated. A limitation to the study was the use of learners from only one institution. A further study utilising graphic design learners from various institutions may therefore prove interesting. Future research in this area should be undertaken within the broader South African context. As the demographics of the learners change and increased numbers of learners who may have experienced co-operative work in the school environment are included, it may become more desirable to incorporate co-operative strategies as part of the course. A questionnaire can be compiled which would further determine learners' own perceptions of the module as well as any recommendations the learners may have with regard to improving the quality of teaching. As part of a qualitative study, learners who have failed the History of Art and Design 1 module will be targeted and asked to complete the questionnaire, and to supply their perceived reasons for their failure. The visual learning component should be expanded on, regardless of the outcome of this study, since it is imperative for design learners to have an increased exposure to visual information.

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ANNEXURE A

LEARNER HANDOUT

QUESTIONNAIRE 1

Instructions: Please answer all questions. Please mark your choice with an X. There are no right or wrong answers. Please write clearly. Use an extra sheet of paper if the space provided for comments is insufficient.

Question 1
In my class we regularly use visual information.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 2
In my class this year we have regularly used visual information in assignments.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 3
I regularly employ visualisation techniques such as mind maps when I study.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 4
In my class this year we have regularly watched films.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 5
I enjoy working on assignments with large amounts of visual content.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 6
I prefer watching a film regarding a topic we have covered in class as it helps me remember more during the exam.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 7
Study material with visual illustrations in the text is more exiting than text on its own.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 8
I find the visual images in study material distracting.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 9
In my class this year we have regularly done group work in class…

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 10
When I work by myself (instead of with a partner or small group) I usually do better.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 11
Usually, I find working with a partner to be more interesting than working alone in class.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 12
Usually, I prefer that the instructor select the partner or group of classmates with whom I will be working.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 13
I prefer working with classmates from the same background as me.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 14
When I work in a small group I usually learn more and do better than in a large group.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 15
Usually, I find working with a group to be a waste of time.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 16
I prefer to study "parrot fashion" rather than use mind maps or visualisation techniques.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 17
I remember more when I work by myself rather than with a group.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 18
Doing group work is good preparation for working in the graphic design industry.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 19
I do not enjoy watching videos based on content we have to cover in class.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 20
Visual illustrations help me remember more during the exam.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

TASK 1

Group 1 – Assignment 1

Aim: Fulfil the assignment using Co-operative Visual Learning Strategies.

Method:

Step 1:

In order to complete Assignment 1 please use the following format:

Structured Group Format (Gibbs, 1995:74-84):

- Working alone: Requiring learners to take notes from a short lecture and using these notes as a focus for discussion. Learners work out own ideas regarding topic to be discussed before contributing to the group. Focus should be on purpose of learning activity learners have engaged in.
- Working in pairs: According to Gibbs (1995:75) it is easier to speak in a pair than in a group. Safety from public ridicule when dealing with ambiguous ideas makes exploration and cautious negotiation more likely. It helps to highlight the way a learner learns when only compared to one other individual. It is helpful when the pair is given a task to work on and reach some kind of agreement on before moving to the next stage of the discussion.
- Working in fours: The increase in the size of the group from a pair to four participants sufficiently introduces a variety of new ideas whilst maintaining individual contributions and keeping the whole process relatively unthreatening. The pairs offer their ideas up for discussion, it discussed in the larger group and the facilitator leads the discussion.

In **Third Step** of Structured Group Format (working in fours) divide group into:

leader

co-ordinator

writer

conceptualist

- Plenary: the reporting back and discussion stage.

Step 2:

1.Watch the video.

2. Follow structured group format, and answer the following questions:

The famous German printer Anton Koberger had a very talented godson – Albrecht Durer.

1.) **Discuss and describe the contribution made by Albrecht Durer to the development of illustration in printed books at the time of the Reformation in Germany. Refer to examples - "The Four Horsemen of the Apocalypse" and "Melancholia".**

QUESTIONNAIRE 2A

Instructions: Please answer all questions. Please mark your choice with an X. There are no right or wrong answers. Please write clearly. Use an extra sheet of paper if the space provided for comments is insufficient.

Question 1 [question 1-5: phase 1]
I was able to complete the brief without difficulty.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 2
I had enough information to complete the brief.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 3
I found the information supplied confusing.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 4
The lecture session was boring.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 5
I could concentrate easily for the whole duration of the lecture.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 6 [question 6-12: phase 2]
After watching the video and doing the exercises I feel that I have learned more than in a "normal" lecture.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 7
I enjoyed having opportunities to share opinions and experiences with classmates in the group.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 8
There were no conflicts during the group work.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 9
We shared opinions about the visual content of the video during the group work.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 10
Discussing the visual content of the video dominated the group work.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 11
Working in a group prevented us from completing the task quickly.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 12
The group discussion we had was memorable.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

TASK 2

Group 2 - Assignment 1

Method:

No visualisation or co-operative strategies to be utilised.

Learners to work individually using the lecture handout/text book only.

Please answer the following questions:

1. **Discuss the development of Chinese calligraphy prior to the invention of paper in 105 AD.**

QUESTIONNAIRE 2B

Instructions: Please answer all questions. Please mark your choice with an X. There are no right or wrong answers. Please write clearly. Use an extra sheet of paper if the space provided for comments is insufficient.

Question 1 [question 1-5: phase 1]
I was able to complete the brief without difficulty.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 2
I had enough information to complete the brief.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 3
I found the information supplied confusing.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 4
The lecture session was boring.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 5
I could concentrate easily for the whole duration of the lecture.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 6 [question 6-8:phase 2]
I don't think that any extra visual information could have helped me answer the brief better.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 7
Working on my own has enabled me to complete the task quickly.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

Question 8
I enjoyed working independently without input from others.

Strongly agree	Agree	Undecided	Disagree	Strongly disagree

Comment:

ANNEXURE B

NUMERICAL SUMMARY OF RESPONSES OBTAINED FROM QUESTIONNAIRE 1 REGARDING VISUAL LEARNING/NON-VISUAL LEARNING AND CO-OPERATIVE LEARNING.

Main Campus: Vanderbjilpark: 18 October 2004 with 22 participants

Ekurhuleni campus: Kempton Park: 21 October 2004 with 10 participants

North-West campus: Klerksdorp: 28 October 2004 with 11 participants

Questionnaire 1 – to determine learners' general attitudes towards Visual and Co-operative Learning

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 1: In my class we regularly use visual information.	V/park	5	13	3	1	0
	Ekurhuleni	1	4	2	3	0
	North-West	5	4	1	1	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 2 In my class this year we have regularly used visual information in assignments.	V/park	1	8	6	5	2
	Ekurhuleni	1	3	0	5	1
	North-West	3	5	0	3	0

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 3 I regularly employ visualisation techniques such as mind maps when I study.	V/park	2	9	5	6	0
	Ekurhuleni	2	4	2	2	0
	North-West	5	2	3	1	0

Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 4 In my class this year we have regularly watched films.	V/park	2	0	2	5	12
	Ekurhuleni	1	0	1	3	5
	North-West	1	9	0	0	1

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 5 I enjoy working on assignments with large amounts of visual content.	V/park	7	9	4	1	1
	Ekurhuleni	3	6	1	0	0
	North-West	4	5	0	2	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 6 I prefer watching a film regarding a topic we have covered in class as it helps me remember more during the exam.	V/park	12	8	2	0	1
	Ekurhuleni	5	2	2	1	0
	North-West	5	6	0	0	0

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 7 Study material with visual illustrations in the text is more exiting than text on its own.	V/park	11	10	0	1	0
	Ekurhuleni	4	5	0	1	0
	North-West	4	7	0	0	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 8 I find the visual images in study material distracting.	V/park	0	1	3	12	6
	Ekurhuleni	0	1	1	5	3
	North-West	0	2	1	3	5

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 9 In my class this year we have regularly done group work in class.	V/park	0	18	2	2	0
	Ekurhuleni	1	5	1	2	1
	North-West	2	8	0	1	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 10 When I work by myself (instead of with a partner or small group) I usually do better.	V/park	0	5	6	2	0
	Ekurhuleni	2	3	1	4	0
	North-West	0	5	1	0	0

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 11 Usually, I find working with a partner to be more interesting than working alone in class.	V/park	4	5	8	3	2
	Ekurhuleni	3	2	4	1	0
	North-West	4	3	3	1	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 12 Usually, I prefer that the instructor select the partner or group of classmates with whom I will be working.	V/park	4	3	4	5	5
	Ekurhuleni	1	2	3	2	2
	North-West	0	6	3	2	0

Question	Campus	Score				
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 13 I prefer working with classmates from the same background as me.	V/park	2	3	7	8	2
	Ekurhuleni	0	3	2	3	0
	North-West	0	4	1	5	1
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 14 When I work in a small group I usually learn more and do better than in a large group.	V/park	9	9	2	1	1
	Ekurhuleni	4	4	1	1	0
	North-West	2	4	3	2	0

Question	Campus	Score				
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 15 Usually, I find working with a group to be a waste of time.	V/park	1	3	7	7	4
	Ekurhuleni	0	1	3	3	2
	North-West	0	0	1	6	4
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 16 I prefer to study "parrot fashion" rather than use mind maps or visualisation techniques.	V/park	2	5	5	5	5
	Ekurhuleni	0	0	2	4	2
	North-West	1	1	3	5	0

Question	Campus	Score				
		Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 17 I remember more when I work by myself rather than with a group.	V/park	3	7	8	3	1
	Ekurhuleni	0	2	1	4	1
	North-West	1	3	4	1	2

Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 18 Doing group work is good preparation for working in the graphic design industry.	V/park	9	12	1	0	0
	Ekurhuleni	3	4	0	1	0
	North-West	1	8	1	1	0

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 19 I do not enjoy watching videos based on content we have to cover in class.	V/park	1	0	4	7	10
	Ekurhuleni	0	0	0	5	8
	North-West	0	1	0	5	5
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 20 Visual illustrations help me remember more during the exam.	V/park	8	12	2	0	0
	Ekurhuleni	2	5	1	0	0
	North-West	4	5	2	0	0

ANNEXURE C

NUMERICAL SUMMARY OF RESPONSES OBTAINED FROM QUESTIONNAIRE 2A: REGARDING VISUAL LEARNING/NON-VISUAL LEARNING AND CO-OPERATIVE LEARNING.

Main Campus: Vanderbjilpark: 18 October 2004 with 17 participants

Ekurhuleni campus: Kempton Park: 21 October 2004 with 10 participants

North West campus: Klerksdorp: 28 October 2004 with 11 participants

Questionnaire 2A to determine learners' attitudes towards Visual and Co-operative Learning after watching the video and working in a group.

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 1: I was able to complete the brief without difficulty	V/park	0	4	3	10	0
	Ekurhuleni	0	3	3	3	0
	North-West	0	4	4	3	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 2: I had enough information to complete the brief.	V/park	0	3	6	7	1
	Ekurhuleni	0	1	4	3	1
	North-West	0	1	1	9	0

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 3: I found the information supplied confusing.	V/park	0	2	4	11	0
	Ekurhuleni	0	0	3	6	0
	North-West	1	4	1	5	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 4: The lecture session was boring.	V/park	1	4	6	6	0
	Ekurhuleni	0	2	4	3	0
	North-West	0	3	0	5	1

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 5: I could concentrate easily for the whole duration of the lecture.	V/park	0	7	4	5	1
	Ekurhuleni	0	2	4	3	0
	North-West	0	5	0	5	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 6: After watching the video and doing the exercises I feel that I have learned more than in a "normal" lecture.	V/park	2	2	6	6	1
	Ekurhuleni	1	5	2	1	0
	North-West	1	3	1	5	1

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 7: I enjoyed having opportunities to share opinions and experiences with classmates in the group.	V/park	2	7	3	4	1
	Ekurhuleni	1	7	0	0	0
	North-West	1	9	1	0	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 8: There were no conflicts during the group work.	V/park	3	5	5	1	2
	Ekurhuleni	1	2	0	5	0
	North-West	4	6	1	0	0

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 9: We shared opinions about the visual content of the video during the group work.	V/park	2	9	3	3	0
	Ekurhuleni	0	8	0	0	0
	North-West	2	7	1	0	1

Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 10: Discussing the visual content of the video dominated the group work.	V/park	1	5	7	3	0
	Ekurhuleni	1	3	2	2	0
	North-West	2	6	3	0	0

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 11: Working in a group prevented us from completing the task quickly.	V/park	2	6	4	4	0
	Ekurhuleni	0	5	1	2	0
	North-West	2	3	1	5	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 12: The group discussion we had was memorable.	V/park	0	4	4	4	1
	Ekurhuleni	1	2	2	1	0
	North-West	1	5	2	2	0

ANNEXURE D

NUMERICAL SUMMARY OF RESPONSES OBTAINED FROM QUESTIONNAIRE 2B: REGARDING VISUAL LEARNING/NON-VISUAL LEARNING AND CO-OPERATIVE LEARNING.

Main Campus: Vanderbjilpark: 18 October 2004 with 17 participants

Ekurhuleni campus: Kempton Park: 21 October 2004 with 10 participants

North West campus: Klerksdorp: 28 October 2004 with 11 participants

Questionnaire 2B – to determine learners' attitudes towards Non-Visual Learning after the lecture.

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 1: I was able to complete the brief without difficulty.	V/park	6	6	3	1	0
	Ekurhuleni	0	4	4	1	0
	North-West	0	4	4	3	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 2: I had enough information to complete the brief.	V/park	1	11	2	2	0
	Ekurhuleni	0	4	4	1	0
	North-West	0	1	1	9	0

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 3: I found the information supplied confusing.	V/park	0	3	1	11	1
	Ekurhuleni	0	2	1	6	0
	North-West	1	4	1	5	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 4: The lecture session was boring.	V/park	2	1	3	9	1
	Ekurhuleni	0	0	4	5	0
	North-West	0	3	0	5	2

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 5: I could concentrate easily for the whole duration of the lecture.	V/park	2	7	3	4	0
	Ekurhuleni	1	2	0	6	0
	North-West	1	5	0	4	0
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 6: I don't think that any extra visual information could have helped me answer the brief better.	V/park	2	3	6	5	0
	Ekurhuleni	0	3	2	4	0
	North-West	1	3	1	6	0

		Score				
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 7: Working on my own has enabled me to complete the task quickly	V/park	4	8	1	3	0
	Ekurhuleni	0	7	1	1	0
	North-West	0	3	2	6	1
Question	Campus	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Question 8: I enjoyed working independently without input from others.	V/park	2	5	5	2	1
	Ekurhuleni	0	2	1	4	2
	North-West	0	1	2	7	1

ANNEXURE E

RESULTS OF FOCUS GROUP INTERVIEWS AND LEARNER QUESTIONNAIRES REGARDING VISUAL LEARNING AND CO-OPERATIVE LEARNING.

Summary of Focus Group interviews held at: Main Campus, Vanderbijlpark, on 18 October 2004.

1. Learners reach a consensus that the lecture was more interesting than the video. (Did not enjoy the content video, did not enjoy the presenter of the video and some experienced problems with the sound quality of the video.)
2. Learners agree that they find the lecture more memorable as the lecture enables them to take notes without being distracted by "too many visuals".
3. Learners agree that the lecture was more memorable because they were able to take notes during the lecture-something they did not do during the video as the venue was darkened.
4. As the interview progresses and the learners have more chances to answer questions some begin to disagree that the content of the video was more interesting than the content of the lecture due to the "wider" more encompassing nature of the video. The learners agree that they had enough access to visual information (videos, slides, etc) throughout the year. They continue to agree that the lecture was more memorable because they were able to take notes.
5. Most learners agree that they did not enjoy participating in the group discussion. They cite reasons such as "group dynamics", "being on their own" no help from certain learners in the group and express a need for "someone" (other than a group member) "to fill in the gaps".
6. Learners express faith in the knowledge of the lecturer – they want to unconditionally believe that what the lecturer says in class is true. They did not enjoy the group work as they do not feel that the video had given them enough information on the topic of discussion.

7. Learners agree that the amount of visuals they currently work with is adequate (slides and text book visuals).
8. Learners agree that visuals help to understand the content of the work better.
9. Learners agree that the use of visuals helps them remember content of lectures during exam time.
10. Learners express a need for more background information relating to the syllabus. They would enjoy it if this was in a video format but are unwilling to allocate any "extra" class time to watching this video.
11. Learners find too many visuals distracting as they prefer to write down notes as the lecturer is speaking. Many said that they start off like that in class and fill in any gaps that they may have missed (including visuals) at home as part of self study.
12. Most learners said that they preferred to work on their own. Some of the reasons they cites for not working in group was "group work is distracting" and some complained of learners piggy backing off the work other learners. Some learners had not contributed even if they had been given tasks to do.
13. Learners found it easy to discuss the visuals. Most learners were familiar with mind maps and such study methods and have been successfully using them since high school. The learners who did not use mind maps said that after they have summarised the work they would like to add visuals and labels to the summary to help them remember (effectively creating a mind map). All learners were in agreement regarding the importance of visual information.
14. Learners said that another reason why the lecture was more memorable than the video was that the lecture dealt directly with exam content whereas in the video the onus was on the learner to summarise the more relevant components.
15. Although most learners agreed that group discussions were useful they prefer not to study using this method as they believe that there is little control within the group –"group work disintegrates to chaos", "group work wastes time", "group work is distracting".
16. The learners agree that if the group work exercises were very heavily structured, and more controlled (meaning a tutor/facilitator at each group) they may get more

work done but are unwilling to "give up" the extra time in order to make it effective.

17. Learners were more enthusiastic about a system where the lecturer begins the class with a lecture followed by structured group work exercises – they did express concern that such a lecture would be "too long" and that they would be unable to concentrate on the same topic in excess of 2 hours. The amount of time allocated on the time table is seen as a problem (learners have 1 hour per week on the subject –when learners were given more time they did not concentrate after 1 hour and some left voluntarily after 1 and a half hours)
18. Given the opportunity to vote for a class structure most learners opted for the standard lecture. The general impression was that learners like to obtain their information quickly and do not enjoy spending extra time on discussions. Most learners admitted to preferring the practical content of the course rather than the theory components.
19. Learners expressed interest in extra videos and visuals but admitted that not all would attend video screenings extra classes if it clashed with their "off" time or was held after hours.
20. Most learners agreed that more background information would be useful – again they were unwilling to give up any of their time in order to obtain that information themselves using the library or other sources.

Summary of Focus Group interviews held at: Ekurhuleni Campus, Kempton Park on 21 October 2004.

1. When asked which lecture type they preferred learners agreed that they preferred a standard lecture to the video presentation.
2. Learners agreed that they would enjoy a combination of a lecture/video combined with a class discussion occasionally as a break from the same type of standard lecture all the time.

3. Learners agree that a "facilitator" or "main researcher" would improve the quality of the group work. They complained that during group work "everybody is doing their own thing", "it's difficult to draw conclusions".

4. Learners seemed to enjoy the group work more than the Main Campus participants. They agree that they enjoyed the work done in the smaller group –as soon as the group got too big it disintegrated into chaos. "Small groups as you get to cover things that you overlooked but you still work within the group."

5. Learners complained that within a bigger group they did not "get anywhere" and that it was difficult to get their point across (other learners dominating the discussion).

6. Learners agreed that it is beneficial to work as a group but expressed concern about the size of the group. When confronted with a larger group they said that they preferred working on their own or within a much smaller group (maximum 3 or 4 learners).

7. Learners did admit to working within groups for other subjects but agreed that group work for History of Art and Design 1 was unique –"it [practical work] is not the same as for history".

8. Most learners agreed that group work has helped them "fill in the gaps" – some admitted to not having "enough of a background" and that group work was helpful in clarifying concepts they did not understand (they found the group discussion sufficient as opposed to main campus participants who only "trusted" in the opinion of the lecturer or tutor).

9. Learners enjoyed the visuals in the video and admitted to needing more visuals for their theory subjects.

10. Some learners found the video worthwhile due to visuals as well as "background" information. Learners tended to think in terms of video and group combination (did not separate the two): "I think the video was better because sometimes you have something on your mind and you can't actually explain it...until the next person comes along and goes its like that and like that...so its better..."

11. Learners found it easy to discuss the visuals.

12. Learners complained of not having enough visual information in class. Most were unfamiliar with mind maps and said that they did not use them. Most looked up visual information in the text book when studying.

13. Learners expressed an interest in more visual information but were unwilling to give up their free time in order to come for video screenings or extra tutorials.

14. Given the opportunity to vote for a class structure most learners opted for a combination of lecture and video information. Most seemed uneasy regarding the group work and said that they would prefer to work on their own or in a small group.

Summary of Focus Group interviews held at: North West campus, Klerksdorp on 28 October 2004.

1. Learners did not find it easy to work within a group.
2. Learners did enjoy the group discussion which followed the video.
3. Most learners found the content of the video boring, they said that they enjoyed watching and discussing the video but would have enjoyed it more had the content been different (even if still related to the subject.)
4. Learners expressed a desire for more group work as they apparently do very little in class.
5. Although they enjoyed the group discussion, learners said that they would still work on their own following the group work to ensure that they had covered the material.
6. Class was undecided as to which approach suited them better –some enjoyed the group but would not trust it as a study tool; some did not enjoy it at all.
7. Class was undecided as to which lecture format they preferred –some enjoyed the video while the majority preferred the lecture.
8. Learners felt that they learned more in the lecture. They mentioned arguing and not reaching a conclusion as some of the problems of group work.
9. Learners complained that not all group members contributed to the group discussion-some felt that they had done more work than others.
10. Learners enjoyed discussing the visual images and examples from the video in their group work.

11. Learners agreed that they would like a system whereby more visuals are distributed to the class prior to the lecture and a group discussion follows the lecture.
12. Learners said that they don't usually discuss images amongst themselves.
13. Learners admitted to using the text book visuals as an aid when studying.

ANNEXURE F

SUMMARY OF QUESTIONNAIRES 1, 2A AND 2B REGARDING VISUAL LEARNING/NON-VISUAL LEARNING AND CO-OPERATIVE LEARNING

Questionnaire 1 – to determine learners' general attitudes towards Visual and Co-operative Learning

Questionnaire 2A – to determine learners' attitudes towards Visual and Co-operative Learning after watching the video and working in a group.

Questionnaire 2B – to determine learners' attitudes towards Non-Visual Learning after the lecture.

Questionnaire 1: Main Campus, Vanderbijlpark: 18 October 2004 with 22 participants in 2 groups.

Question 1
In my class we regularly use visual information.
Result: 18 learners either strongly agree or agree with this statement.
Conclusion: Learners regularly use visual information at the Vanderbijlpark campus.

Question 2
In my class this year we have regularly used visual information in assignments.
Result: 9 learners strongly agree and agree with this statement.
6 learners are undecided
Conclusion: At the Vanderbijlpark campus the majority of learners use visual information in assignments.

Question 3
I regularly employ visualisation techniques such as mind maps when I study.
Result: 11 learners strongly agree and agree with this statement.
5 learners are undecided
Conclusion: The majority of learners utilise visualisation techniques such as mind maps when they study.

Question 4
In my class this year we have regularly watched films.
Result: 17 learners strongly disagree and disagree with this statement.
12 learners strongly agree
Conclusion: Most learners are in agreement that they have not watched films on a regular basis at the Vanderbijlaprk campus. Some learners agree with the above statement indicating that films have been watched (but perhaps not regularly).

Question 5
I enjoy working on assignments with large amounts of visual content.
Result: 16 learners strongly agree and agree with this statement.
Conclusion: Learners enjoy working on assignments which includes visual content.

Question 6
I prefer watching a film regarding a topic we have covered in class as it helps me remember more during the exam.
Result: 19 learners strongly agree and agree with this statement.
Conclusion: The majority of learners enjoy watching films as a learning tool.

Question 7
Study material with visual illustrations in the text is more exiting than text on its own.
Result: 21 learners strongly agree and agree with this statement.
Conclusion: The majority of learners agree that study material containing visual information is more exiting than text on its own.

Question 8
I find the visual images in study material distracting.
Result: 18 learners strongly disagree and disagree with this statement.
Conclusion: As most learners disagree with the statement it is safe to conclude that learners do not find visual images in study material distracting.

Question 9
In my class this year we have regularly done group work in class…
Result: 18 learners agree with this statement.
Conclusion: Most learners have done group work (Co-operative Learning) in class at the Vanderbijlpark campus.

Question 10
When I work by myself (instead of with a partner or small group) I usually do better.
Result: 14 learners strongly agree and agree with this statement.
6 learners are undecided.
Conclusion: Most learners agree that they do better on assignments and tests when they study on their own (group work is not seen as beneficial in this regard).

Question 11
Usually, I find working with a partner to be more interesting than working alone in class.

Result: 9 learners strongly agree and agree with this statement.
8 learners are undecided.

Conclusion: Although most learners agree with this statement some remain undecided and unsure whether working with a partner or group is more interesting than working on one's own.

Question 12

Usually, I prefer that the instructor select the partner or group of classmates with whom I will be working.

Result: 12 learners strongly disagree and disagree with this statement.

Conclusion: Learners do not enjoying having their group selected for them by the instructor and would prefer to select their own group.

Question 13

I prefer working with classmates from the same background as me.

Result: 10 learners strongly disagree and disagree with this statement.
7 learners are undecided.

Conclusion: Most learners strongly disagree with this statement but some remain cautiously undecided.

Question 14

When I work in a small group I usually learn more and do better than in a large group.

Result: 18 learners strongly agree and agree with this statement.

Conclusion: The majority of the learners agree that working in a small group is better than with a larger group.

Question 15

Usually, I find working with a group to be a waste of time.

Result: 7 learners disagree with this statement.
7 learners are undecided.

Conclusion: Some learners disagree that working in a group is a waste of time but an equal amount of learners are undecided.

Question 16

I prefer to study "parrot fashion" rather than use mind maps or visualisation techniques.

Result: 7 learners strongly agree and agree with this statement.
10 learners strongly disagree and disagree with this statement.
5 learners are undecided.

Conclusion: Most learners do not prefer to study "parrot fashion" and prefer to use some kind of visualisation technique.

Question 17

I remember more when I work by myself rather than with a group.

Result: 10 learners strongly agree and agree with this statement.
8 learners are undecided.

Conclusion: Learners agree that they retain more information than when they work on their own rather than when they work in a group.

Question 18

Doing group work is good preparation for working in the graphic design industry.

Result: 21 learners strongly agree and agree with this statement.

Conclusion: The majority of the learners agree that group work is good preparation for the graphic design industry.

Question 19

I do not enjoy watching videos based on content we have to cover in class.

Result: 17 learners strongly disagree and disagree with this statement.

Conclusion: As most learners disagree with the statement one can conclude that learners enjoy the videos that they get to watch in class.

Question 20

Visual illustrations help me remember more during the exam.

Result: 20 learners strongly agree and agree with this statement.

Conclusion: The majority of learners agree that visual information helps them remember more about work content during the exam.

Questionnaire 1: Ekurhuleni campus: Kempton Park: 21 October 2004 with 10 participants

Question 1
In my class we regularly use visual information.
Result: 5 learners strongly agree and agree with this statement.
5 learners are undecided or disagree with this statement.
Conclusion: Learners at the Ekurhuleni campus are undecided as to whether they have regularly used visual information in class.

Question 2
In my class this year we have regularly used visual information in assignments.
Result: 6 learners strongly disagree and disagree with this statement.
Conclusion: Most learners disagree with the statement therefore one can conclude that learners at the Ekurhuleni campus do not use visual information in their assignments.

Question 3
I regularly employ visualisation techniques such as mind maps when I study.
Result: 6 learners strongly disagree and disagree with this statement.
Conclusion: The majority of learners do not utilise visualisation techniques such as mind maps when they study.

Question 4
In my class this year we have regularly watched films.
Result: 8 learners strongly disagree and disagree with this statement.
Conclusion: The majority of learners are in agreement that they have not watched films on a regular basis at the Ekurhuleni campus.

Question 5
I enjoy working on assignments with large amounts of visual content.
Result: 9 learners strongly agree and agree with this statement.
Conclusion: Learners enjoy working on assignments which includes visual content.

Question 6
I prefer watching a film regarding a topic we have covered in class as it helps me remember more during the exam.
Result: 7 learners strongly agree and agree with this statement.
Conclusion: The majority of learners enjoy watching films as a learning tool.

Question 7
Study material with visual illustrations in the text is more exiting than text on its own.
Result: 9 learners strongly agree and agree with this statement.
Conclusion: The overwhelming majority of learners agree that study material containing visual information is more exiting than text on its own.

Question 8
I find the visual images in study material distracting.
Result: 8 learners strongly disagree and disagree with this statement.
Conclusion: As most learners disagree with the statement it is safe to conclude that learners do not find visual images in study material distracting.

Question 9
In my class this year we have regularly done group work in class…
Result: 6 learners strongly agree and agree with this statement.
Conclusion: Most learners have done group work (Co-operative Learning) in class at the Ekurhuleni campus.

Question 10
When I work by myself (instead of with a partner or small group) I usually do better.
Result: 5 learners strongly agree and agree with this statement.
5 learners are undecided or disagree with this statement.
Conclusion: The result is inconclusive as half the learners agree that they do better on assignments and tests when they study on their own and half the learners are undecided or disagree.

Question 11
Usually, I find working with a partner to be more interesting than working alone in class.
Result: 5 learners strongly agree and agree with this statement.
5 learners are undecided or disagree
Conclusion: The result is inconclusive as half the learners find it more interesting to work with a partner and half are undecided or disagree with the statement.

Question 12
Usually, I prefer that the instructor select the partner or group of classmates with whom I will be working.
Result: 12 learners strongly disagree and disagree with this statement.
Conclusion: Learners do not enjoying having their group selected for them by the instructor and would prefer to select their own group.

Question 13
I prefer working with classmates from the same background as me.
Result: 4 learners strongly disagree and disagree with this statement.
5 learners are undecided or agree with this statement.
1 learner has chosen not to answer the question.
Conclusion: The uneven answer of this question may lead to the conclusion that although some learners do not mind working with learners from different backgrounds some would agree that it is preferable and some are uncertain.

Question 14

When I work in a small group I usually learn more and do better than in a large group.

Result: 8 learners strongly agree and agree with this statement.

Conclusion: The majority of the learners agree that working in a small group is better than with a larger group.

Question 15

Usually, I find working with a group to be a waste of time.

Result: 5 learners strongly disagree or disagree with this statement.
3 learners are undecided.

Conclusion: Some learners disagree that working in a group is a waste of time but a significant amount of learners are undecided.

Question 16

I prefer to study "parrot fashion" rather than use mind maps or visualisation techniques.

Result: 6 learners strongly disagree and disagree with this statement.
2 learners are undecided.

Conclusion: Most learners do not prefer to study "parrot fashion" and prefer to use some kind of visualisation technique.

Question 17

I remember more when I work by myself rather than with a group.

Result: 5 learners strongly disagree and disagree with this statement.
2 learners agree with this statement.
1 learner is undecided.
2 learners have chosen to answer the question.

Conclusion: Learners agree that they retain more information than when they work with a group rather than when they work on their own.

Question 18

Doing group work is good preparation for working in the graphic design industry.

Result: 7 learners strongly agree and agree with this statement.

Conclusion: The majority of the learners agree that group work is good preparation for the graphic design industry.

Question 19

I do not enjoy watching videos based on content we have to cover in class.

Result: 8 learners strongly disagree and disagree with this statement.

Conclusion: As most learners disagree with the statement one can conclude that learners enjoy the videos that they get to watch in class.

Question 20

Visual illustrations help me remember more during the exam.

Result: 7 learners strongly agree and agree with this statement.

Conclusion: The majority of learners agree that visual information helps them remember more about work content during the exam.

Questionnaire 1: North West campus: Klerksdorp: 28 October 2004 with 11 participants

Question 1
In my class we regularly use visual information.
Result: 9 learners strongly agree and agree with this statement.
Conclusion: An overwhelming majority of learners at the North West campus agree that they have regularly used visual information in class.

Question 2
In my class this year we have regularly used visual information in assignments.
Result: 8 learners strongly agree and agree with this statement.
Conclusion: Most learners agree with the statement therefore one can conclude that learners at the North West campus do use visual information in their assignments.

Question 3
I regularly employ visualisation techniques such as mind maps when I study.
Result: 7 learners strongly agree and agree with this statement.
Conclusion: The majority of learners utilise visualisation techniques such as mind maps when they study.

Question 4
In my class this year we have regularly watched films.
Result: 10 learners strongly disagree and disagree with this statement.
Conclusion: The overwhelming majority of learners are in agreement that they have watched films on a regular basis at the North West campus.

Question 5
I enjoy working on assignments with large amounts of visual content.
Result: 9 learners strongly agree and agree with this statement.
Conclusion: Learners enjoy working on assignments which includes visual content.

Question 6
I prefer watching a film regarding a topic we have covered in class as it helps me remember more during the exam.
Result: 11 learners strongly agree and agree with this statement.
Conclusion: All of the learners enjoy watching films as a learning tool.

Question 7
Study material with visual illustrations in the text is more exiting than text on its own.
Result: 11 learners strongly agree and agree with this statement.
Conclusion: All of the learners agree that study material containing visual information is more exiting than text on its own.

Question 8
I find the visual images in study material distracting.
Result: 8 learners strongly disagree and disagree with this statement.
Conclusion: As most learners disagree with the statement it is safe to conclude that learners do not find visual images in study material distracting.

Question 9
In my class this year we have regularly done group work in class…
Result: 10 learners strongly agree and agree with this statement.
Conclusion: An overwhelming majority of learners have done group work (Co-operative Learning) in class at the North West campus.

Question 10
When I work by myself (instead of with a partner or small group) I usually do better.
Result: 5 learners agree with this statement.
1 learner is undecided.
5 learners disagree with this statement.
Conclusion: The result is inconclusive as half the learners agree that they do better on assignments and tests when they study on their own and half the learners are undecided or disagree.

Question 11
Usually, I find working with a partner to be more interesting than working alone in class.
Result: 8 learners strongly agree and agree with this statement.

Conclusion: Most of the learners find it more interesting to work with a partner.

Question 12
Usually, I prefer that the instructor select the partner or group of classmates with whom I will be working.
Result: 6 learners agree with this statement.
Conclusion: Learners enjoy having their group selected for them by the instructor.

Question 13
I prefer working with classmates from the same background as me.
Result: 6 learners strongly disagree and disagree with this statement.
4 learners agree with this statement.
1 learner is undecided
Conclusion: The uneven answer of this question may lead to the conclusion that although some learners do not mind working with learners from different backgrounds some would agree that it is preferable.

Question 14
When I work in a small group I usually learn more and do better than in a large group.
Result: 6 learners strongly agree and agree with this statement.
4 learners disagree with this statement.

1 learner is undecided.

Conclusion: The small majority of the learners agree that working in a small group is better than with a larger group.

Question 15

Usually, I find working with a group to be a waste of time.

Result: 10 learners strongly disagree or disagree with this statement.
1 learner is undecided.

Conclusion: An overwhelming majority of learners disagree that working in a group is a waste of time.

Question 16

I prefer to study "parrot fashion" rather than use mind maps or visualisation techniques.

Result: 5 learners disagree with this statement.
3 learners are undecided.

Conclusion: Most learners do not prefer to study "parrot fashion" and prefer to use some kind of visualisation technique.

Question 17

I remember more when I work by myself rather than with a group.

Result: 3 learners strongly disagree and disagree with this statement.
3 learners agree with this statement.
4 learners are undecided.

Conclusion: Learners agree that they retain more information than when they work with a group rather than when they work on their own.

Question 18

Doing group work is good preparation for working in the graphic design industry.

Result: 9 learners strongly agree and agree with this statement.

Conclusion: The majority of the learners agree that group work is good preparation for the graphic design industry.

Question 19

I do not enjoy watching videos based on content we have to cover in class.

Result: 10 learners strongly disagree and disagree with this statement.

Conclusion: As the majority of learners disagree with the statement one can conclude that learners enjoy the videos that they get to watch in class.

Question 20

Visual illustrations help me remember more during the exam.

Result: 9 learners strongly agree and agree with this statement.

Conclusion: The majority of learners agree that visual information helps them remember more about work content during the exam.

ANNEXURE G

Summary of exam results for the subject History of Art and Design 1 at Vanderbijlpark Campus, Ekurhuleni Campus and North West Campus.

CAMPUS	SEMESTER	YEAR	FACULTY	DEPARTMENT	SUBJ	DESC	ENROLLED	WITHDRAW	ADMITTED	WROTE	FAILED	ABSENT	PASSED	% ADMITTED	EXAM	% PASS	% OVERALL
E	JUNE	2002	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	5	0	5	5	3	0	2	100.00	40.00	40.00	40.00
E	NOVEMBER	2002	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	27	2	16	16	9	0	7	59.26	43.75	28.00	28.00
E	JUNE	2003	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	16	1	14	14	1	0	13	87.50	92.86	86.67	86.67
E	NOVEMBER	2003	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	22	1	15	15	9	0	6	68.18	40.00	28.57	28.57
E	JUNE	2004	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	16	0	16	14	10	2	4	100.00	28.57	25.00	25.00
E	NOVEMBER	2004	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	18	1	6	6	2	0	4	33.33	66.67	23.53	23.53
E	JUNE	2005	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	27	1	26	26	7	0	19	96.30	73.08	73.08	73.08
E	NOVEMBER	2005	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A		29										

CAMPUS	SEMESTER	YEAR	FACULTY	DEPARTMENT	SUBJ	DESC	ENROLLED	WITHDRAW	ADMITTED	WROTE	FAILED	ABSENT	PASSED	% ADMITTED	% PASS EXAM	% OVERALL PASS
N	JUNE	2002	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	19	0	12	12	6	0	6	63.16	50.00	**31.58**
N	NOVEMBER	2002	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	19	0	8	8	1	0	7	42.11	87.50	**36.84**
N	JUNE	2003	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	19	1	15	15	11	0	4	78.95	26.67	**22.22**
N	NOVEMBER	2003	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	20	5	8	7	4	1	3	40.00	42.86	**20.00**
N	JUNE	2004	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	3	1	2	2	1	0	1	66.67	50.00	**50.00**
N	NOVEMBER	2004	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	2	1	1	1	0	0	1	50.00	100.00	**100.00**
N	JUNE	2005	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	1									

CAMPUS	SEMESTER	YEAR	FACULTY	DEPARTMENT	SUBJ	DESC	ENROLLED	WITHDRAW	ADMITTED	WROTE	FAILED	ABSENT	PASSED	% ADMITTED	% PASS EXAM	% OVERALL PASS
V	JUNE	2002	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	36	2	24	23	2	1	21	66.67	91.30	**61.76**
V	NOVEMBER	2002	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	36	3	23	23	4	0	19	63.89	82.61	**57.58**
V	JUNE	2003	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	34	1	18	18	3	0	15	52.94	83.33	**45.45**
V	NOVEMBER	2003	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	38	3	17	17	5	0	12	44.74	70.59	**34.29**
V	JUNE	2004	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	46	1	28	28	11	0	17	60.87	60.71	**37.78**
V	NOVEMBER	2004	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	50	3	24	23	12	1	11	48.00	47.83	**23.40**
V	JUNE	2005	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTX1A	HISTORY OF ART AND DESIGN 1: MODULE 1	39	3	36	36	20	0	16	92.31	44.44	**44.44**
V	NOVEMBER	2005	FACULTY OF HUMAN SCIENCES	GRAPHIC DESIGN & PHOTOGRAPHY	HDHTY1A	HISTORY OF ART AND DESIGN 1: MODULE 2	42									

KEY
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V=VANDERBIJLAPRK CAMPUS
E= EKURHULENI CAMPUS
N= NORTH WEST CAMPUS

EXAMINATION RESULTS 2002:		PASS RATE JUNE	PASS RATE NOVEMBER	AVERAGE PASS RATE P/YEAR:
PASS RATE:	V =	91.3 %	82.6 %	**86.9**
	E =	40 %	43.7 %	41.8
	N =	50 %	87.5 %	68.7

EXAMINATION RESULTS 2003:		JUNE	NOVEMBER	
PASS RATE:	V =	83.33	70.59	**76.9**
	E =	92.86	40.00	66.4
	N =	26.67	42.86	69.4

EXAMINATION RESULTS 2004:		JUNE	NOVEMBER	
PASS RATE:	V =	60.7	47.8	54.2
	E =	28.5	66.6	47.5
	N =	50	100*	**75**

*INCONCLUSIVE RESULT AS ONLY 1 STUDENT WROTE AND PASSED THE EXAM

EXAMINATION RESULTS 2005:		JUNE	NOVEMBER	
PASS RATE:	V =	44	unknown	unknown
	E =	73	unknown	unknown
	N =	100*	unknown	unknown

*INCONCLUSIVE RESULT AS ONLY 1 STUDENT WROTE AND PASSED THE EXAM